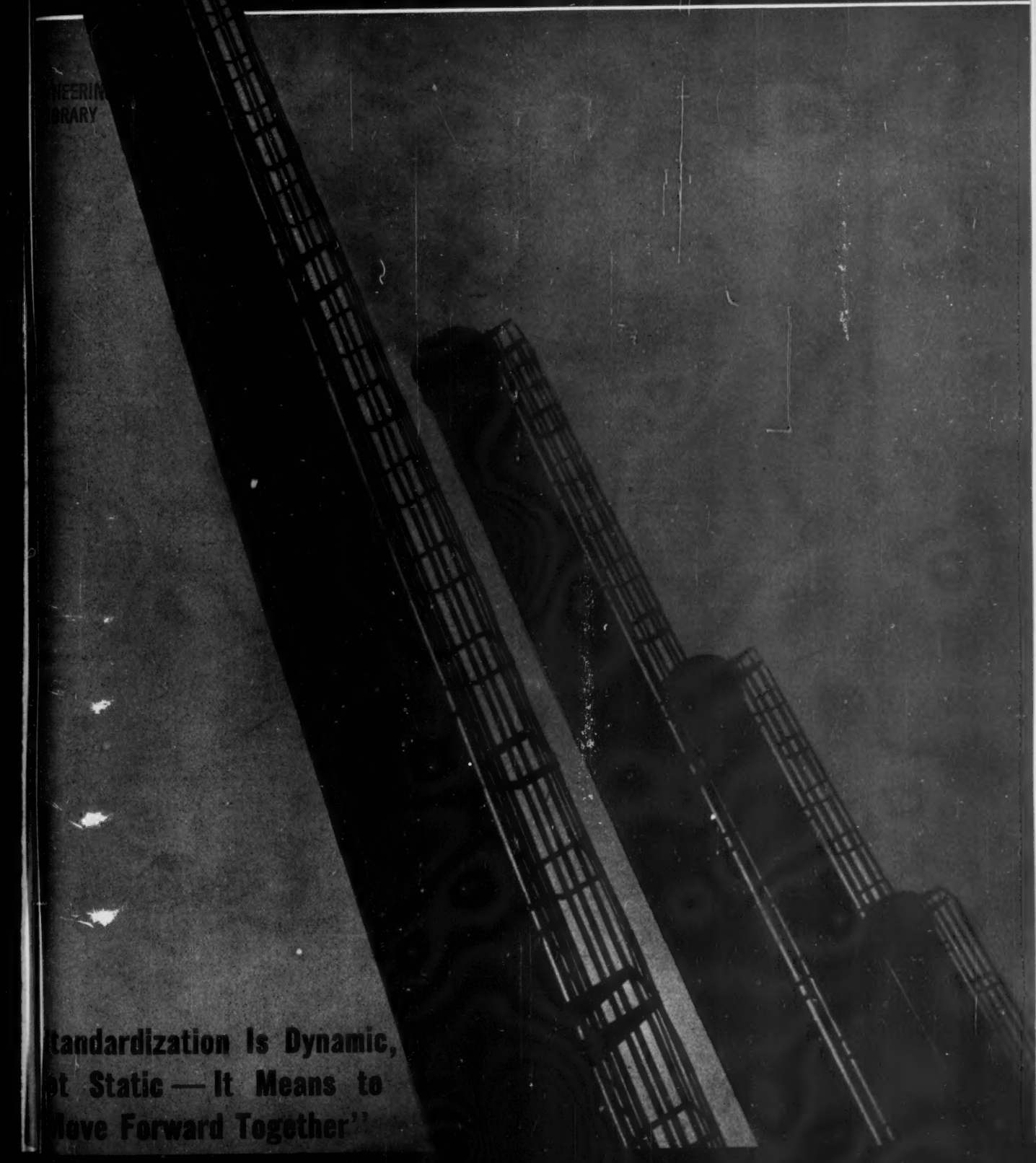
Industrial

January 1946

Standardization



tandardization Is Dynamic,
ot Static — It Means to
love Forward Together"

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SAFETY—W. R. Smith, Safety Engineer, Public Service Electric & Gas Company, Newark, N. J.

ASA Member-Bodies

Amer Gas Assn
Amer Institute of Bolt, Nut, & Rivet Mfrs
Amer Institute of Electrical Engineers
Amer Institute of Steel Construction, Inc
Amer Iron & Steel Institute
Amer Petroleum Institute
Amer Soc of Civil Engineers
Amer Soc of Mechanical Engineers
Amer Soc for Testing Materials
Amer Soc of Tool Engineers, Inc
Amer Transit Assn
Amer Water Works Assn
Assn of Amer Railroads
Automobile Mfrs Assn
Cast Iron Pipe Research Assn
Copper & Brass Research Assn
Electric Light and Power Group:
  Assn of Edison Illuminating Companies
  Edison Electric Institute
Federal Works Agency
Fire Protection Group:
  Associated Factory Mutual Fire Insurance Companies
  Nat Bd of Fire Underwriters
  Nat Fire Protection Assn
  Underwriters' Laboratories, Inc
Institute of Radio Engineers
Mfrs Standardization Soc of the Valve and Fittings Industry
Metal Cutting Tool Institute
Nat Assn of Mutual Casualty Companies
Nat Conservation Bureau
Nat Electrical Mfrs Assn
Nat Housing Agency
Nat Lumber Mfrs Assn
Nat Machine Tool Builders' Assn
Nat Safety Council
Outdoor Advertising Assn of America, Inc
Oxychloride Cement Association
Photographic Mfrs Group:
  Ansco Division of General Aniline & Film Corporation; Eastman Kodak Company; Photo Products Department, E. I. du Pont de Nemours & Co
Radio Mfrs Assn
Scientific Apparatus Makers of America
Soc of Automotive Engineers, Inc
Screw Industry Standards Committee
Telephone Group:
  Bell Telephone System
  U.S. Independent Telephone Association
U.S. Department of Agriculture
U.S. Department of Commerce
U.S. Department of the Interior
U.S. Department of Labor
U.S. Govt Printing Office
U.S. Navy Department
U.S. Treasury Department
U.S. War Department

Associate Members

Amer Assn of Textile Chemists and Colorists
Amer Council of Commercial Laboratories
Amer Gear Mfrs Assn
Amer Home Economics Assn
Amer Hospital Assn
Amer Institute of Architects
Amer Soc of Heating & Ventilating Engineers
Amer Soc of Refrigerating Engineers
Amer Trucking Assn, Inc
Amer Welding Society
Anti-Friction Bearing Mfrs Assn, Inc
Asphalt Roofing Industry Bureau
Associated General Contractors of America, Inc
Assn of Gas Appliance and Equipment Mfrs
Assn of Iron and Steel Engineers
Com on Consumer Relations in Advertising, Inc
Douglas Fir Plywood Assn
Grinding Wheel Mfrs Assn
Gypsum Assn
Heat Exchange Institute
Illuminating Engineering Society
Industrial Safety Equipment Assn
Insulation Board Institute
Internat Acetylene Assn
Modular Service Assn
Nat Assn of Finishers of Textile Fabrics
Nat Assn of Wool Mfrs
Nat Elevator Manufacturing Industry, Inc
Nat Federation of Textiles, Inc
Nat Lime Assn
Nat Retail Dry Goods Assn
Red Cedar Shingle Bureau
Research Council of the Academy of Motion Picture Arts and Sciences
Soc of Motion Picture Engineers
Structural Clay Products Institute
Textile Color Card Assn of the U.S., Inc
Veneer Association

Company Members—

Some 2000 Industrial concerns hold membership either directly or by group arrangement through their respective trade associations

Readers Write

Uniform Paper Sizes?

Rockford, Illinois

Gentlemen: Would it be possible now that the war is over, to establish a uniform size for trade journals? It is my hope that the 8½ x 11 size will be selected so that the magazines and reprints can be filed in standard filing equipment.

E. W. DICKETT

• • It was explained to Mr. Dickett that the standardization of magazine sizes is essentially part and parcel of the general problem of setting up a standard system on paper sizes for all uses, such as books, office forms, posters, bank checks, etc. The American Standards Association was asked to undertake such a project before the war but the pressure of war work made it impossible to start the project at that time.

Color Code in Promotional Literature

Benjamin Electric Manufacturing Company

Gentlemen: Benjamin Electric Manufacturing Company is very much interested in supporting a Color Code as set up by the American Standards Association in belief that color for use in prevention of accidents has a definite tie-in value with industrial lighting design. It is our purpose in the writing of our promotional literature to make reference to and use the information that you have set up.

JAMES R. CHAMBERS,
Application Research Engineer

ASA Standards Procedure

Apprentice Organization Book Agency Balboa, Canal Zone

Gentlemen: In a course to be given to apprentices and journeymen mechanics we wish to introduce some material covering standards accepted for use in the United States. We would appreciate it if you would send your most recent catalog of ASA publications and literature describing the process by which ASA standards are developed and adopted.

PHILIP GREEN,
Manager

• • The American Standards Association was pleased to send its list of standards and other publications showing how American Standards are developed and used.

Assistance for Small Businessmen

Smaller War Plants Corporation

Gentlemen: The Technical Advisory Service of the Smaller War Plants Corporation is endeavoring to assist the small businessman in obtaining nonconfidential information on his technical problems. The following has been submitted:

Eng. lib.
Paxon

"Subject company is a manufacturer of cutters and small tools and is desirous of obtaining design information for the manufacture of Involute Gear Cutters, this information to be complete and in sufficient detail to enable them to make such cutters.

"They are particularly interested in supplying cutters for cutting one tooth space at a time similar to Navy Specification 40C2, cutter numbers 1 to 8 inclusive, with diametral pitch from 2 to 20 inclusive.

"This information is urgently required. Anything you can do to expedite will be greatly appreciated."

A. J. DIETSH,
Technical Advisory Consultant

• • A copy of the American Standard for Milling Cutters, B5c-1930, was sent to Mr. Dietsh, and his attention was called particularly to Table 16. It was also suggested that he get in touch with the Chairman of Technical Committee No. 5 on Milling Cutters.

Is Metal Buckle Dangerous in Leather Protector Gloves?

American Optical Company

Gentlemen: I have just had occasion to check the American War Standard J6.3-1945 for Leather Protector Gloves and find in paragraph 2.4.6 that a tongueless buckle is specified and a rivet or staple can be used to tip the pull end of the strap. Since there is no material specified, any metal can be used for these parts and I have been wondering if this is not a potential hazard. Since the War Standards have been published, more and more of our orders are coming through with notations that the article ordered must meet the American War Standard for that article.

GEORGE H. SCHAUWEKER,
Development Engineer

• • There was discussion of this point about metal tongueless buckles and the rivet or staple at the tip of the leather tongue at the time these specifications were being prepared. However, it was decided that there was in fact no hazard since these buckles are located at the back of the wrist, and the leather glove itself and the rubber glove are both between the metal and lineman's hand. It might be theoretically possible that a defective metal staple could have a point which might pierce the leather glove and possibly the rubber glove inside. However, there had never been such a case as far as the committee could determine, and the equipment is so thoroughly inspected when it is purchased and also periodically by the linemen who wear it, that it was the opinion of the committee that there should be no hazard.

The Pictures: Page 9, Fairchild Engine & Airplane Corp.; 13, Charles Phelps Cushing; 15, Keystone View.

Our Front Cover: **Chimneys, showing safety guards around the ladders. Photo by Charles Phelps Cushing**

Industrial Standardization

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Contents

The Annual Meeting, A Year in Review—
- National Standardization—Adventure in Free Enterprise. By H. B. Bryans 2
- New Year Starts New Epoch for ASA. By H. S. Osborne 6
- The Impact of War on Science. By Lyman J. Briggs 8
- Standards Council Acts to Speed Peacetime Work on Standards 11
- Committee Authorized for Exchange of Ideas by Company Standards Men 12
- Amendment to ASA Constitution Being Considered to Speed Work 17
- 1946 ASA Officers Named 1
- ASA Welcomes Members from Many Fields 1

ASA Members, Personnel—
- G. N. Thompson Heads NBS Division on Codes 3
- Federal Specifications Board Honors Dr. Briggs 21
- Dr. Condon Is Named Chairman of Federal Specifications Board 21
- I. J. Fairfield Retires as Chief of NBS Trade Standards 27
- Colonel Davies Receives Legion of Merit Medal 19

Associations and Government—
- SAE Aeronautic Meeting to be Held in April 17
- ASTM Names Tentative Standards "Tentatives" 17
- NBS Revises Standard for Douglas Fir Stock Doors 18
- National Bureau of Standards Offers Standard Samples for Buffer Solution 19
- New Standards in ASA Library 23
- NBS Acts on Standards and Simplified Practice Recommendations 24
- ASTM Reorganizes Administrative Staff 25

Automotive—
- SAE to Change Names of Aircraft Parts 22
- Standards Needed to Apply New Power Sources 25
- States Plan Standards to Break Highway Barriers 7

Company Standards—
- Committee Authorized for Exchange of Ideas by Company Standards Men 12
- Standards Training Important to Engineers 12
- General Electric Makes Standards a Function of Executive Department 19

Consumer—
- "Certified Foods"—New Entry in Canning Field 3
- Manufacturer Calls for Standards for Small Sizes in Women's Dresses 18

From Other Countries—
- Australia to Standardize Plaster of Paris 20
- Standardization Well Developed in USSR Construction 20
- Brazilian Standards 20
- Australia Starts Work on Plastics Standards 20
- Cooperation—Keynote of Standards 20
- SAA Lists New Housing Standards 20
- New Standards from Other Countries Now Available in ASA Library 22

Petroleum Products and Lubricants—
- ASTM Compiles Standards for Petroleum Products and Lubricants 12
- NBS Announces New Reference Fuel for Determining Knock Rating 18

Plastics—
- Handbook Being Prepared by Plastics Industry 17
- Australia Starts Work on Plastics Standards 20

Quality Control—
- ASTM Meeting to Feature Quality Control 21
- New Books on Quality Control 21

Safety—
- ICC Requires Standard Fire Extinguishers 12
- Postwar Plans for Safety Standardization. By Cyril Ainsworth 13
- Standards Help Buyers of Protective Equipment 27

ASA Standards Activities—
- American Standards 25
- American War Standards 25
- News About ASA Projects 26

January, 1946 Ruth E. Mason, Editor **35 Cents**

Standardization is dynamic, not static. It means not to stand still, but to move forward together.

Subscription price $4.00 per year (foreign $5.00). Special to schools and libraries $2.00 (foreign $3.00). Re-entered as 2nd Class Matter 7/31/43, at the Post Office, New York, N. Y., Act of March 3, 1879.

ASA Annual Meeting

Briggs Is Speaker; New Officers Elected

THE largest gathering of representatives from ASA Member-Bodies, Associate Members, Company Members, and guests that has ever attended an Annual Meeting of the American Standards Association met at the Biltmore Hotel, New York, December 7, 1945. Featured speaker of the day was Dr. Lyman J. Briggs, retiring director of the National Bureau of Standards, who had taken an important part in the early development of the atomic bomb research. His theme was the effect of war on science (see page 8).

The meeting also heard the announcement of the election of new ASA officers for 1946. Returning as president for a third term is Henry B. Bryans, executive vice president of the Philadelphia Electric Company. Mr. Bryans presided at the Annual Meeting and presented the President's report for 1945, in which he called attention to the importance of the democratic processes in the development of national standards (see page 2).

Frederick R. Lack, vice president and manager of the Radio Division, Western Electric Company, Inc., is the new vice president of the American Standards Association for 1946.

E. C. Crittenden, assistant director of the National Bureau of Standards, takes over the leadership of the technical work as chairman of the ASA Standards Council for the coming year; and L. F. Adams, manager of the Standards Division, General Electric Company, is the new vice chairman of the Council.

The report of the technical work accomplished during 1945 was presented by Dr. H. S. Osborne, retiring chairman of the Standards Council, who told the meeting that the activities of the American Standards Association had reached their highest level during the past year (see page 6).

Honored guest of the American Standards Association at the Annual Meeting was S. T. Shang, secretary-general of the Chinese Standards Committee, who had returned to New York from an extended tour of American industry.

Reading from Top Down: Henry B. Bryans, President; Frederick R. Lack, Vice President; E. C. Crittenden, Chairman of Standards Council; L. F. Adams, Vice Chairman of Standards Council.

1946 ASA Officers Named

Re-election of Bryans Announced at ASA Annual Meeting; F. R. Lack Is New Vice President

HENRY B. BRYANS, executive vice president and director of the Philadelphia Electric Company, has been unanimously re-elected to serve a third term as president of the American Standards Association. New officers have been elected to fill the positions of vice president of the American Standards Association, and chairman and vice chairman of the Standards Council, as announced at the Annual Meeting of the ASA held at the Hotel Biltmore, New York, December 7.

Lack, Crittenden, Adams Are New Officers

Frederick R. Lack, vice president and manager, Radio Division, Western Electric Company, Inc., was elected new vice president of the American Standards Association. E. C. Crittenden, assistant director of the National Bureau of Standards, was elected new chairman of the Standards Council; and L. F. Adams, manager, Standards Division, Executive Department, General Electric Company, was elected new vice chairman of the Standards Council.

Mr. Bryans has been a member of the ASA Board of Directors since 1941. His connection with the United Gas Improvement Company and its associate companies dates from 1907 when he was employed as a mechanical engineer. He is a fellow of the American Institute of Electrical Engineers, and a member of the American Society of Mechanical Engineers, and the Franklin Institute.

Frederick R. Lack, newly elected vice president, has been a member of the Board of Directors of ASA since early this year when he was nominated to the position by the Institute of Radio Engineers. He worked on the engineering staffs of the Western Electric Company and the Bell Telephone Laboratories, where he helped develop radio telephone systems. He was elected vice president of Western Electric and manager of its Radio Division in 1942. Mr. Lack is a fellow of the Institute of Radio Engineers and the American Institute of Electrical Engineers, and a member of the American Physical Society, and the Harvard Engineering Society.

Crittenden Active in ASA Since 1925

E. C. Crittenden is the new chairman of Standards Council. He has been a member of the Council since 1925 and vice chairman for the past three years. Mr. Crittenden is assistant director of the National Bureau of Standards and has been chief of the Bureau's Electrical Section since 1921. He began working for the National Bureau of Standards as an assistant physicist in 1909. In his 20 years of association with the ASA, Mr. Crittenden has been active in the work of the Electrical Standards Committee and in the United States National Committee of the International Electrotechnical Commission. He is a member of numerous societies, including the International Commission on Illumination (1924, 1928, 1931); the American Physical Society; the Optical Society of America (of which he was vice president in 1930-32); the Illuminating Engineering Society (of which he was president in 1925); and a fellow of the American Institute of Electrical Engineers.

Adams Heads GE Standards Work

L. F. Adams, who will serve as vice chairman of the Standards Council for 1946, is a representative of the National Electrical Manufacturers Association. Mr. Adams is assistant to the vice president in charge of engineering policy, and, also, manager of the Standards Division, Executive Department, of the General Electric Company. He has been with GE since 1906 in various engineering positions, such as designing engineer, application engineer, and commercial engineer. He is vice president of the United States National Committee of the International Electrotechnical Commission.

Mr. Adams has been connected with the American Standards Association since 1927 as a member of Standards Council, and he is a member of the Electrical Standards Committee, the Safety Code Correlating Committee (of which he was chairman for three years), the Mechanical Standards Committee, and the Advisory Committee on Ultimate Consumer Goods. He is a fellow of the American Institute of Electrical Engineers; a member of the American Society for Testing Materials, the Society of Automotive Engineers, the National Safety Council, Inc; and associate member of the International Association of Electrical Inspectors and of the International Municipal Signal Association.

ASA Welcomes Members from Many Fields

The American Standards Association is pleased to welcome 17 new members representing a variety of industries, including dairying, wire and cable, glass, tool making, and a state department of labor and factory inspection. The new ASA members are:

Albert Specialty Company, Chicago, Ill.
Allied Industrial Engineers, Cincinnati, Ohio.
Blue Ridge Glass Corporation, Kingsport, Tenn.
Garfield Manufacturing Company, Garfield, N. J.
Hammel-Dahl Company, Providence, R. I.
Northern Equipment Company, Erie, Pa.
Ohio Injector Company, Wadsworth, O.
Pitney-Bowes, Inc, Stamford, Conn.
Pratt & Gray Company, Inc, Norwalk, Conn.
Productioneering Associates, Rockford, Ill.
Reda Pump Company, Bartlesville, Okla.
Roberts Dairy Company, Omaha, Neb.
Rodney Hunt Machine Company, Orange, Mass.
Schrillo Aero Tool Engineering Company, Los Angeles, Calif.
Star Sprinkler Corporation, Philadelphia, Pa.
State of Connecticut, Labor and Factory Inspection, Hartford, Conn.
Triangle Conduit & Cable Company, New Brunswick, N. J.

National Standardization—Adventure in Free Enterprise

By Henry B. Bryans

Tooling up for postwar expansion, the American Standards Association needs help from industry to maintain machinery for democratic development of standards; international and company work has been renewed

PEACE is bringing with it so many problems that today we may well say, as Tom Paine said 170 years ago, "These are the times that try men's souls".

There is one question that enters into many of these problems. This is whether these problems shall be left for government to solve, or whether those who are directly concerned with them shall find a way to work out a solution of their own through cooperative action.

Let me stop here to point out that this latter method is precisely the way the ASA works—by representatives of the groups directly concerned facing each other across the table and working out a solution of the problem in the form of a standard. The ASA method is to break down the problem into parts small enough so that each part can be handled authoritatively by a committee made up of representatives of all cooperating groups concerned.

One more point—decisions are not made by mere majority vote. Matters are threshed out so thoroughly that most decisions are unanimous, or nearly so. This means that the job has to be done so well that real solutions instead of mere make-shift compromises are obtained.

Solved Problem in Field of Employer-Employee Relations

In this way the ASA and its cooperating groups solved one problem in the field of employer-employee relations. This involved safety standards—only a small sector of the big employer-employee problem, but an important one.

In like manner, a series of basic standards for the prevention of industrial diseases is being laid down; as is also a series of building-code standards, which have an important bearing on the housing problem. There is also a series of traffic standards.

I have purposely passed over the more numerous standard specifications, methods of test, nomenclature, and dimensional standards. Each of these standards solves problems between buyer and seller. We have come to take them for granted.

I know of no organization that is doing more firing-line work, or accomplishing more in the solution of such basic problems than the ASA.

In my two years in the presidency of the Association, I have been continually impressed by the number and importance of these jobs. Scarcely a week goes by but that I learn of some important undertaking. Yet, as has often been said, we have only scratched the surface of the job that needs to be done.

But let us get back to Tom Paine's famous saying. Peoples all over the world are turning to their governments to solve the innumerable complicated problems that face them. This trend is far more marked than ever before, with Great Britain, France, Belgium, and Holland nationalizing banks, utilities, and mines. Virtually all of Western Europe seems to be following this trend.

United States Outstanding Exception To Trend Toward Government Control

The outstanding exception is this country. Here, I am sure you will agree, business, labor, and government spokesmen take the opposite view. They are confident that private initiative can produce superior results. Our magnificent war production record is irrefutable proof of this.

Another important example and symbol of what private initiative can do is present in the development of standards. In this field, as you know, we achieve results by cooperation, with all concerned represented in solving the problem.

An important memorandum on the subject, addressed to the Secretary of Commerce by Carroll L. Wilson, was released early in the year. In this memorandum, Mr. Wilson recommended that a greatly increased program should be undertaken under the leadership of industry and business with the full cooperation of the Federal Government. He said in effect that compared with the important job which needs to be done, the ASA has been operating as a pilot plant; that now is the time to build a full-sized plant for the job ahead. Mr. Wilson made several very constructive criticisms of the ASA work. Mr. Wilson's memorandum was endorsed by the official Visiting Committee of the National Bureau of Standards, the chairman of which is Dr. Gano Dunn.

Henry B. Bryans, *re-elected president of the American Standards Association, is executive vice president of the Philadelphia Electric Company.*

Following this, the Secretary of Commerce called a meeting of some 50 business and industrial executives on January 12, 1945, to consider not only this report but the whole question of the relative roles of government and industry in standardization activities. As a result of the deliberations of the conference, the Secretary requested eight members under the chairmanship of Charles E. Wilson, president of General Electric Company, to serve as a Policy Committee on Standards for a more detailed study of these questions. The Policy Committee rendered a report under date of June 6, 1945. I shall take

time to read but three brief paragraphs from the meaty report of this Committee:

"The Committee believes that standards will have an ever-increasing importance. They will play an expanding role in the fields of engineering and manufactured goods to the commercial field and to many other new fields. Thus, they will ultimately affect the production and sale of all goods. With this belief, it becomes evident that provisions must be made for the orderly development of all standards.

"The Committee believes that standards activities which involve negotiation, opinion, judgment, or compromise, should be developed through individual and joint efforts of technical, manufacturing, merchandising, and consumer groups.

"The Committee also believes that these efforts will need to be co-ordinated and promoted through a disinterested private agency organized to function in the broad public interest. It appears that this function can most logically be fulfilled by the American Standards Association."

The Committee recommended that the National Bureau of Standards should be provided with the means of greatly extending its research and test facilities in order to provide more of the technical data needed in standardization work, also that the Department of Commerce should be provided with means to develop research into the economics of standardization, and into the use of standards in the entire distribution process.

Financial Needs Limit Progress

During the year, the ASA has made a good start on tooling up along the lines recommended by the report of the Wilson Committee. It has broadened the scope of its work by an appropriate change in its constitution. It is broadening the representative character of its Board. It is streamlining its procedure for the approval of standards.

But the outstanding problem before the ASA is the very large increase in financial support necessary to meet these larger responsibilities. It is planned to bring this about through a two-stage effort.

The first step will be to ask a group of the larger companies to carry the main burden over the transition period, say for the first two years.

The second step will be the broadening of the base of support so as to spread the obligation more equitably over a wide range of industry and business.

In October, the ASA was invited to the meeting of the United Nations Standards Coordinating Committee. Fourteen nations were represented. As you know, this organization is a temporary one set up for a period of two years. The most important development of the meeting was the action taken in setting up a permanent international body. It is expected that the organization of the new body will be consummated at a conference to be held in London at the end of May, 1946. It was the unanimous view of the delegates that in the postwar world the international aspects of standards were going to be of far greater importance than formerly, and that accordingly the permanent institution must be more strongly organized and more amply financed and staffed than was the old International Standards Association.

The special work for the military services, the War Production Board, and the OPA have continued throughout the year with only a slight decrease in volume. Important parts of it will continue into 1946.

Plan Meetings of Heads of Company Standards Departments

Plans have been completed for regular meetings of the heads of the standards departments of ASA Company Members. Prior to the war, some very valuable preliminary work was done along these lines. It was found to be an excellent method of evaluating the workability and the effectiveness of standards as they work out in actual industrial use. The impetus for renewing and strengthening this activity came from the companies.

I am pleased to announce that the following Associations have joined the ASA during the year:

Oxychloride Cement Association
Radio Manufacturers Association
Scientific Apparatus Makers of America
Red Cedar Shingle Bureau
The Veneer Association

This brings the number of Member-Bodies to 49 and the Associate Members to 39, a total of 88.

I am also pleased to welcome many new companies into membership.

At the beginning, I said that I know of no organization that is doing more firing-line work or accomplishing more in the solution of basic problems under the leadership of private enterprise than the ASA. Yet I agree with the report of Mr. Wilson's committee that the ASA must now tool itself up to do a much greater job in the immediate future.

Every one of us can do his bit in helping get the ASA over the hump by enlisting the interest of others, and by getting his company and his association to join in this adventure of private enterprise.

"Certified Foods"—New Entry in Canning Field

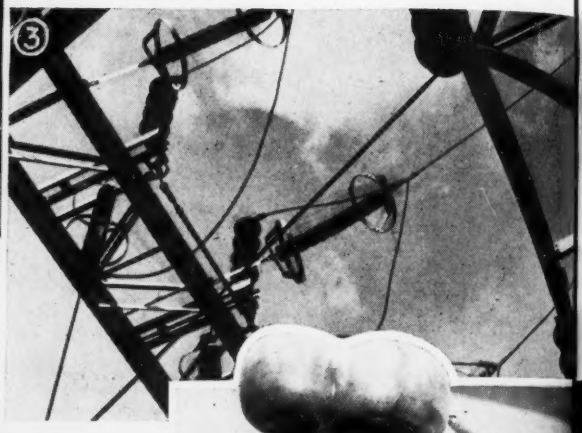
The first national offering of a complete fruit and vegetable line of processed foods featuring U.S. Continuous Grading is announced in San Francisco with the formation of "Certified Foods", a group venture in which participating packers share jointly in the ownership and control of the new label, "Your Certified". All the food is packed under the continuous inspection of the U.S. Department of Agriculture. At first, only one grade will be offered on each product.

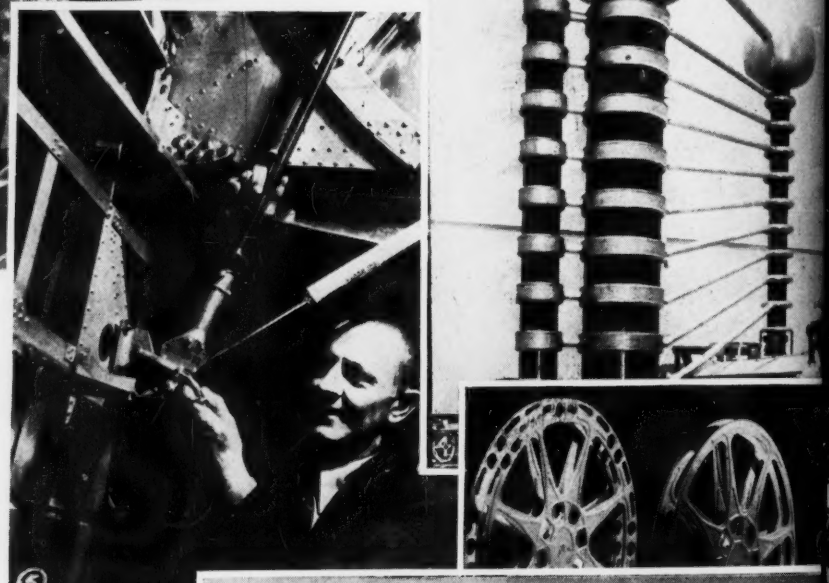
The new label features the Shielded Consumer Information panel covering description, grades, and information sections as to use and preparation of the canned product. It was recommended by the U.S. Inspected Foods Educational Service of New York for its canner members as the result of three years' working experience with consumer labeling.

"Certified Foods", exclusive sales agency for the new brand, has established national sales offices at 260 California Street, San Francisco, with Dwight Paulhamus as managing director. Mr. Paulhamus was formerly sales manager of the Tri-Valley Packing Association.

G. N. Thompson Heads NBS Division on Codes

George N. Thompson has been named chief of the Division of Codes and Specifications of the National Bureau of Standards, succeeding A. S. McAllister. Mr. Thompson also replaces Dr. McAllister on the Standards Council of the American Standards Association. He has been a member of the ASA Building Code Correlating Committee for the last ten years and its chairman since 1944. As a representative of the National Bureau of Standards, United States Department of Commerce, Mr. Thompson has served on committees in the building code field since 1938.





JANUARY

FEBRUARY

MARCH

APRIL

MAY

JUNE

JULY

AUGUST

SEPTEMBER

OCTOBER

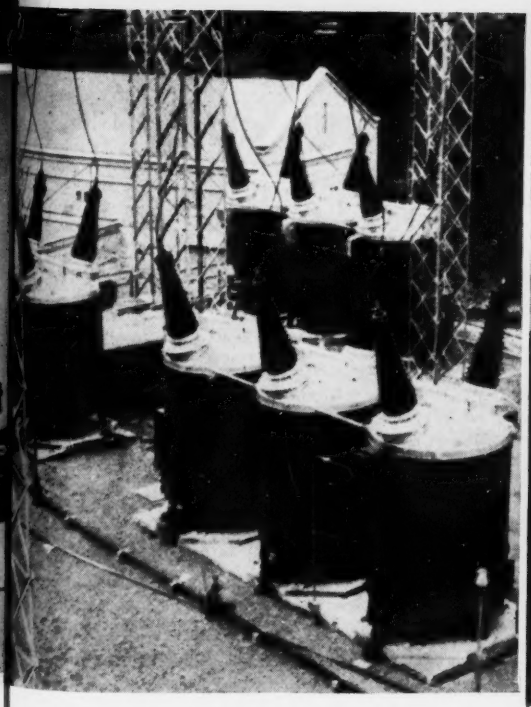
NOVEMBER

DECEMBER

A Year in Review

The eventful year 1945 found American Standards entering many new fields that offer unusual promise for development in the future. Some of the most important of those approved during 1945 are illustrated here.

The Pictures — 1. Asbestos clothing (Jones & Laughlin Steel Corporation); 2. Color code for lubrication of machinery (Stewart Warner Corporation); 3. Electical insulators (Public Service Electric & Gas Company); 4. Safety code for x-rays (National Bureau of Standards); 5. Screw threads (Lockheed Aircraft Corporation); 6. Motion picture reels and containers (Eastman Kodak Company); 7. Film spool dimensions for aerial photography (U. S. Air Forces); 8. Safety color code (Grumann Aircraft Engineering Corp); 9. Circuit breakers (General Electric Company); 10. Coordination of building dimensions (Charles Phelps Cushing); 11. International meeting on standards.



New Year Starts New Epoch for ASA

By H. S. Osborne

Expansion in large-scale production, and increase in government controls have brought increased interest in national standards; highest level of activity shown by ASA during past year

DECEMBER 7, 1945 may be considered to mark for the American Standards Association, as for the country, the end of one epoch and the beginning of another.

During the past four years the efforts of the ASA have been directed toward being of the greatest possible help in the winning of the war. There can be no doubt that these efforts were successful, that the work of the past four years was an important contribution to the war effort. Of the 535 standards adopted I estimate that 85 percent were of direct concern in connection with the war effort. About 30 percent were directly for the use of the Armed Forces; 25 percent were for the safety and protection of workers; 30 percent related to matters directly important to facilitate large-scale production.

Dr. H. S. Osborne, *retiring chairman of the Standards Council of the American Standards Association, is chief engineer of the American Telephone & Telegraph Company.*

Throughout all this period the level of activity in standards work has remained high, higher indeed than at any other time in the history of the American Standards Association. This arises from the recognition of all concerned of the importance of these activities in wartime. In fact, the greatly expanded effort in large-scale production and also the great increase in government controls have brought an increased appreciation of the importance of standards in our highly industrialized economy. It would have been advantageous to have a much larger number of standards than were available, particularly in the field of consumer goods.

Increased Activity for Safety of Workers

A brief analysis of the work of the past 12 months is of interest. Great attention was again given to standards for the safety of workers, 23 such standards having been approved during the year. Besides standards for protective work clothing and gloves, the year's work included a safety code for industrial x-rays, a new field of rapidly growing importance. It included a color code for marking physical hazards, a simple thing but one whose standardization should be very helpful in reducing accidents. Also a standard method of compiling accident statistics was adopted, eliminating the previous wide variation in the interpretation of what constitutes an industrial accident, thus making results from different areas more comparable and assisting in the application of past experience to the provision of greater safety in the future.

A considerable number of the standards adopted were designed specifically for the use of the Armed Forces. Outstanding in this field were 35 standards of photographic apparatus and equipment which while designed for the Armed Forces will undoubtedly have an important application in postwar civilian production.

As usual, a large group of standards (34) related to the specifications and tests of materials. In this classification the year's work included considerable groups of standards relating to petroleum projects, to boiler tubes, and to steel plates.

A number of standards were of particular interest for the reconversion period. One of these is a new standard for wood poles which defines sizes and permissible fiber stresses for 14 new types of pole timber. The previous standards covered the six types of timber most widely used. With the present scarcity of poles, these added types of timber will have a large commercial field and the new standards should be very helpful in facilitating their use. Other standards of special interest for the reconversion period relate to standardizing minimum design loads for buildings and standard sizes of building materials and components, specifically brick, masonry, doors, and windows.

One noteworthy job completed during the year was agreement with our British and Canadian friends on a standard for acme screw threads used widely in machine tools. The joint standard has been made an American Standard and is expected to be adopted by the standards associations of the other two countries.

Cooperate on Eight International Standards

Last year Mr. Bryans announced the establishment, in cooperation with the standardizing bodies of a number of the United Nations, of a temporary organization called the United Nations Standards Coordinating Committee to facilitate the coordination of standards between the United Nations for the war and reconversion periods. During the year the American Standards Association has associated itself with eight projects

under the auspices of this international coordinating agency. These projects relate to radio noise interference, grading and testing of shellac, the moisture regain of wool, the definition of the term "rayon", testing of textiles, sheet and wire metal gages, high transmission voltages, and the heat treatment of steel. This work will continue to be carried forward in the permanent international standards organization which is now being formed.

I spoke of the fact that this is not only the end of one era in the work of the American Standards Association but also the beginning of another. There is general agreement that the coming years will see a continuing increase in the volume of standards work to be done through the cooperation of industry and government and particularly that there is a need for a large increase in the volume of standards applying to consumer goods.

Council Adjusting Procedures to Meet Demand for Greater Speed

The Standards Council has frequently adjusted its activities during the 27 years of its life to align them to changing conditions, and the Council is in the process now of making a further adjustment to meet these future conditions.

The ASA is, as has often been said, a federation of other organizations, and the ASA itself possesses only those responsibilities and powers which have been specifically given to it by the member-bodies. In the Association the Standards Council occupies a unique position because it is made up of the official representatives of all the member-bodies and is consequently the forum in which are discussed all of the basic policies and other questions relating to the ASA which are finally determined by the member-bodies.

When the American Engineering Standards Committee was formed in 1918 the committee, itself the predecessor of the Standards Council, handled all types of questions and policy, administrative and standardization, which came up in the operations of the organization. As the organization grew this became progressively less desirable. Consequently, in 1928 the present form of organization was established in which a Board of Directors was set up to take over the administrative functions, leaving in the hands of the Standards Council the conduct of the actual standardizing work of the organization.

Already before this time a start had been made in spreading the standards work of the Council through the creation of committees (correlating committees) to whom were assigned certain of the responsibilities. The first of these, the Safety Code Correlating Committee, was organized in 1920 and by 1935 the present system of seven correlating committees had been established. These committees were charged with important responsibilities relating to the initiation of projects, the determination of scopes and sponsorship, and the personnel of committees. They pass upon and recommend to the full Council the final approval of the standards developed in their respective fields.

Looking forward to the future, the Standards Council has voted to assign to the correlating committees the final approval of standards within their fields, subject only to judicial review and the right to appeal to the Council as a whole. This is little more than a formal recognition of the responsibilities naturally assumed by the correlating committees in their fields. In making this change it is contemplated that correlating committees in additional fields will be added to the organization as the volume of work in these fields develops sufficiently to make this desirable.

This change in organization will place the Standards Council in a position to devote its time more freely to those important questions which should be considered by the one group which represents all of the member-bodies. All general questions of administrative and standards work, through the medium of the correlating committees or otherwise, must still come before the Council. Questions of policy, expansion of activities, or other matters, many of which require action by the Board of Directors, are first discussed by representatives of the member-bodies gathered together in the Standards Council. I believe that the present move to further relieve the Council from any routine work which can be properly handled by the correlating committees is a good augury that the American Standards Association will continue to increase in helpfulness to industry and to the government and will be able more effectively to meet its important and growing responsibilities.

States Plan Standards To Break Highway Barriers

Several State legislatures are planning to take steps in 1946 to break down highway barriers and bring about standard size and weight requirements for motor vehicles through adoption of motor vehicle reciprocity legislation, the National Highway Users Conference announces.

In Kentucky, size and weight limitations will be under consideration, and determined efforts will be made to liberalize the state's motor vehicle size and weight limitations, the Conference declares. Bills will be introduced to increase sizes and weights and to provide reciprocity, and the highway commission may insist on the right to designate highways that can carry heavier weights.

In Mississippi, a measure is planned to provide 18,000 lb axle weight, gross weight of 45,000 lb, and an increase of length for tractor semi-trailers from 40 to 45 feet. Another proposal is expected to authorize the present Mississippi Committee on Reciprocal Agreements to enter into full reciprocity with other states.

In Virginia, attempts may be made to increase the gross weight limit of 40,000 lb more nearly in line with those of North and South Carolina.

ASTM Names Tentative Standards "Tentatives"

In an attempt to make a clear distinction between formally adopted specifications and those proposed standards issued for trial and comment hitherto known as tentative standards, the American Society for Testing Materials has changed the name of the latter group to "tentatives."

Although any proposed specification or test method published by the Society has undergone a rigorous procedure before reaching the publication stage, it is felt that a final test period of use and trial is necessary, the ASTM announces. Many people overlook the distinction which this period implies. They recognize little difference between a tentative and a standard so far as acceptability is concerned. The ASTM expects that the change in nomenclature from tentative standard to "tentatives" will clarify the situation.

The Impact of War on Science

By Lyman J. Briggs

In the short period of 40-odd years, military use of science has brought new life-saving methods, superseding disregard for elementary safeguards found during Spanish-American war; has resulted in breathtaking examples of scientific cooperation

WE have heard a good deal during the past three months about the importance of science in the war effort. I shall now ask you to turn the phrase about and to consider with me for a few moments the impact of war on science.

I have seen our country engaged in three wars. Shortly after war with Spain was declared, I visited an Army training camp in Virginia a few miles from Washington. The place was swarming with flies. The sanitary provisions consisted of open latrines. During the years 1898-99, more than half of the army was incapacitated with typhoid, typhus, and intestinal diseases. Deaths from disease outnumbered deaths on the battlefield nearly 4 to 1.

This shocking state of affairs aroused the country and led to much-needed support for the Army Medical Corps, with amazing results. Yellow fever was practically abolished from America. The incidence of malaria in the Army fell from over 700 per 1000 in 1901 to 8 per 1000 in 1927. The death rate from typhoid, typhus, and intestinal diseases dropped from 1 in 100 in the Spanish-American war to 1 in 10,000 in World War I.

When Japan invaded the East Indies, our supply of quinine was cut off, but atabrine came to the rescue. New sulfa drugs were developed for the first-aid kits of our fighting men. The outstanding bactericidal effects of penicillin were recognized and its production and purification were undertaken on an astounding scale. Men found how to prepare blood plasma so that it would keep almost indefinitely. With the aid of sulfa, penicillin, and blood plasma and the help of those unarmed heroes of the front line, the Medical Corpsmen, the Army Medical Service accomplished the miracle of saving the lives of 96 out of every 100 wounded men.

These precious achievements of medical science would have eventually come to us in times of peace, but the impact of the war accelerated their development tremendously and they are now available to every physician.

Dr. Lyman J. Briggs, *who recently retired as director of the National Bureau of Standards, was named by President Roosevelt in 1939 as chairman of the Uranium Committee to study the possibility of using atomic energy in warfare. He has been a member of the ASA Board of Directors since 1932.*

Nor must I fail to mention here that remarkable chemical DDT. Its insecticidal properties were discovered in Switzerland in 1940, and in 1942 its production was undertaken both here and in England. Germany and Japan apparently never got it. So potent is it that a light spray application on the walls of a house will kill flies and mosquitoes lighting on the wall for weeks afterward.

In World War I, body lice were destroyed by the soaping and bathing of the men and by baking their clothing. But the soldier's clothing soon became infected again in the trenches. Louse-borne trench fever was prevalent. DDT has solved this problem. Treating the clothing with a suitable emulsion of DDT kills the lice crawling on it for weeks afterward. This treatment was highly successful in preventing lousiness in the American and British forces—in striking contrast to conditions among the Nazi troops.

The systematic application of DDT powder to the clothing of every inhabitant of Naples throttled what pomised to be a virulent typhus epidemic. In the South Pacific campaign, the medical treatment of malaria and the preventive measures, including DDT, were so effective that malaria became our potent ally. Preventive measures were almost nonexistent among the Japanese.

DDT thus represents another contribution of science to mankind, accelerated by the war. Its use in the field, where friendly and pollenating insects must be protected, remains to be determined. But in the home there are no friendly insects.

Enthusiastic exponents of basic research have stated that in the course of the war we developed no new basic principles—we only utilized what was already known. This is a matter of definition and I shall not dwell upon it. But to me the men who take the germ of a scientist's discovery and develop it painstakingly into something of great value to mankind are likewise not without honor. For example in Loran, which incidentally is an abbreviation of "Long range aids to navigation", the underlying principle is radio. Two stations A and B along a coast line send out radio pulses at the same instant. The outstanding development is in the receiver, which is carried on a ship or airplane. This receiver measures the *difference* in the time of arrival of the signals from the two stations, measures it to an accuracy of a millionth of a second.

Assume that the pilot finds this time difference to be 10 microseconds. On his chart he picks out from a family of hyperbolic curves drawn between the two stations the curve marked 10 microseconds. He knows then that he is located somewhere along this curve. He repeats his measurements with signals coming from *B* and a third station *C* which locates him on another curve intersecting the first. His actual position is the point of intersection and he can find it up to 1000 miles from the stations with a precision comparable to that of the standard methods of navigation. The method is quick and it can be used in fog or at night.

"Great contributions to science have already been made by industrial laboratories. The war just closed has brought a new realization of the advances that are possible."

More than 80 such stations have been established by the Navy Department, many of them in the Pacific. Their continued operation would be a great boon to safe navigation by sea and air in these areas.

Radar Has Peacetime Possibilities

Radar was one of the early and outstanding contributions to the war. The transmitted radio pulse is reflected back from a distant object to the receiver. The elapsed time provides a measure of the distance of the object, while the angular position of the radio beam fixes the direction. When the radio beam is made to sweep the horizon, the shore line and intervening objects are mapped out in correct position on a phosphorescent viewing screen. Radar has been used in countless ways, including the bombing of German cities through clouds which hid the position of the attacking planes. It has great peacetime applications in sea and air navigation, particularly in avoiding collisions. It can be used to measure the height of an airplane above the ground or the distance of an approaching mountain.

The proximity fuse is another outstanding development based on radio. The fuse in the nose of the bomb or rocket or shell is in fact a complete radio transmitting and receiving station, so small that in some models it can be covered by a man's hand. The fuse picks up its own transmitted beam as reflected from the target and as modified by the Doeppler effect. When this reflected signal reaches the required intensity, the fuse explodes the missile.

A missile armed with a proximity fuse which explodes it 30 or 40 feet above the heads of moving troops or men in foxholes has been shown to be from 5 to 20 times as effective as the same missile armed with a contact fuse. Similarly, a proximity fuse will explode if it comes within 50 to 75 feet of a passing airplane. In fact, its effectiveness against airplanes is so great that for months our High Command withheld its use, fearing that it might fall into enemy hands and be copied for use against us. It is a military weapon and its peacetime applications are not obvious, but the principles involved in the construction of its sturdy midget radio tubes may readily find broad applications.

The outstanding accomplishments I have mentioned, to which many others might well be added, were brought about by great teamwork on the part of highly competent men. But the greatest concerted scientific effort of all time on a single project was, I believe, that associated with the atomic bomb.

There was so little exact information to start with. Fission of individual uranium atoms was an established fact. The energy released was very great. The fission probably took place in the less abundant isotope, uranium 235. This was about the limit of our factual knowledge regarding fission in October 1939. The rest was theory, but theory that proved of inestimable value in guiding the experimental work.

Was it possible to establish a chain reaction? This was the fundamental question, and although experimental work was started immediately, a self-sustaining chain-reacting pile was not finally accomplished until December 1942.

Uranium metal of the highest possible purity was needed in large amounts for a chain-reacting pile, but up to 1940 only a few grams of uranium metal had ever been produced. The whole problem of the practical production of pure uranium metal had to be met. Similarly, methods had to be developed for the practical separation of the pure isotope 235 from the mixture, which contains only 0.7 percent of 235.

This again was an unknown field.

Four methods were developed successfully, embracing gaseous diffusion, thermal diffusion, electromagnetic separation, and centrifugal separation. Three of these were used in plant production. On the long,

hard road between the laboratory models of the scientists and quantity production, the Army took over the command from the Office of Scientific Research and Development, with outstanding cooperation from industrial firms.

Use of Plutonium Original and Daring

But to me the most original and daring concept of the whole undertaking was the use of a great chain-reacting pile to produce a brand-new man-made element, plutonium, atomic number 94, and to produce it not in the micrograms of the chemist, but in actual pounds of pure separated usable material. It was daring because at the time the enormously expensive undertaking was authorized, our physicists were not perfectly sure that plutonium was subject to fission. But if so, it had two great advantages. It would utilize the abundant uranium isotope 238 and, as it was another element, not an isotope, it could be separated from the remaining uranium metal by chemical methods.

Here, again, many difficulties had to be overcome. In particular, the radioactivity of the pile was so intense that it could not be approached. All operations, including the chemical separation of the plutonium, had to be carried out by remote control. But the success of the undertaking is attested by the fact that plutonium was used in one of the atomic bombs dropped on Japan.

All through the war there was great uncertainty as to whether the Germans were working on this problem. We felt almost sure they were, but we didn't know what they were accomplishing. We have learned since that they gave the matter up a year or more ago and decided it was something that could not be accomplished, at least in time for any effect on the present war. The matter on our part was kept so secret that the Germans on their part had no intimation as to what was going on here. There have been various estimates made by responsible men who were associated with the project regarding the time that it will take to make a practicable commercial application of atomic energy in the production of power. Those estimates range from 3 to 25 years depending on the amount of work that is put into it. I think that most of the men taking part in this discussion felt that it would be possible to bring atomic energy into a practical application where it could compete with coal at $15 per ton of coal. In an installation for an automobile, however, a plant producing only 100 kw would probably weigh in the neighborhood of 50 tons because of the necessity of the great protective barriers that must be placed around it to avoid the effect of radio-activity. So at the present time the indication is that the initial application will be along the line of large power plants.

Assuredly only war or the fear of war could have brought this vast undertaking to such a speedy conclusion. Under normal peacetime conditions, such an undertaking would have extended over many years with grave doubts as to its financial support. To this extent time has been gained. It remains now for all of us to use all the wisdom at our command to divert this epochal development to the paths of peace. Used in this way, it bids fair to become a truly great contribution to mankind.

I have endeavored to point out some of the ways in which the war has stimulated scientific research that will prove helpful in our peacetime pursuits. We have now to look at the other side of the ledger. The loss of men and of potential scientists cannot be evaluated in terms of dollars. We know that it has been heavy. As to the material costs of the war, a recent computation has placed it near 1400 billions of dollars, with China not included. Of this staggering total, more than one fourth has been incurred by the United States. Funds for research have never been placed high on the budgetary lists of the Federal and State governments. Our war indebtedness now imposes a new handicap.

Trained Research Men Badly Needed

For the past five years the normal training of our young men in colleges and universities has been disrupted. The educational facilities afforded to returning veterans were planned to mitigate this loss as much as possible. Early reports on the utilization of these facilities are encouraging, but heavy losses seem inevitable. The great deficiency of men who have carried their training through to their doctorates will be keenly felt in all research laboratories. It has been estimated that not until 1956 will the number of doctorates granted reach the level that would have been attained if the rising curve of prewar years had continued without interruption by the war. Even then the accumulated deficit of trained men will not have been met.

As in all wars, the ledger is far from balanced. One cannot but reflect sadly how much could have been accomplished for humanity with a tithe of what the war has cost.

The war has made our people more research-minded than ever before in our history. I think this is associated in part with a realization of the need for continued research in the interest of national security, pending the establishment of world security on a firm and lasting foundation. But more than this, the recent release of information about numerous projects heretofore held secret has brought about suddenly a vivid realization of the tremendous role science has played in the war. We sense great possibilities if these research activities are turned along the paths of peace.

How Support Basic Research?

How is this basic research to be supported? Under our present laws and social order, we cannot look with assurance in the future to the endowment of new agencies for research from large private fortunes. Parenthetically, some of those who have decried the fortunes of Rockefeller, Carnegie, and Mellon have almost in the same breath applauded the advances in science and the humanities that these fortunes have helped to make possible. The further endowment of scientific research from individual fortunes, priceless for the freedom it entails, cannot then be expected to meet postwar requirements.

Bills have already been introduced in Congress by Senators Magnuson, Kilgore, and Fulbright providing for the support of research from Federal funds. A new measure incorporating features of these bills is under preparation, but has not yet been reported out by the committee. The interest shown in these measures is in refreshing contrast to that of 1933, when one of the first acts of the Roosevelt administration was to cut the appropriated funds of the research agencies of the Government by one half. The Magnuson bill was written primarily around the idea of providing Federal funds to universities. The Kilgore and Fulbright bills provide for the participation of Government agencies also in the en-

larged research program. Scientific research by government agencies and basic research in particular has not in the past had much support in Congressional circles. I earnestly hope that the greater interest now being shown in research will provide a place in the sun also for the old-line Government research agencies and that they will have the opportunity to show what they can do with adequate support.

Should Encourage Research by Industry

I come now to a most important phase of this whole research matter, namely, research by industry. I think this should be encouraged in every way possible, including tax exemptions or similar indirect subsidies. Practically speaking, I think the over-all income of the Government would be increased rather than reduced by a most liberal policy in this respect.

The first world war gave a tremendous impetus to industrial research. Many manufacturers were impressed with the possibilities of a research laboratory in their organization. Inasmuch as the first world war was known as a chemist's war, they hired chemists to head their laboratories, without too keen an understanding of the problems involved. These chemists were smart fellows. They accepted the jobs with alacrity and assurance and then went out and hired physicists and engineers to help them.

Industrial Laboratories Have Contributed

Great contributions to science have already been made by industrial laboratories in this country, including investigations of a fundamental character. We have Nobel prize men in industry. The war just closed has brought a new realization of the advances that are possible through research. New laboratories will be established; old ones enlarged. With this should come also an enlargement of the relationships of industrial research men. They should not be limited too closely to the job of finding the solution of immediate industrial problems. They should be encouraged by management to extend their investigations to the underlying problems in their field, to attend scientific meetings, to present in journals the results of their researches. This policy will pay dividends.

Standards Council Acts to Speed Peacetime Work on Standards

INTERNATIONAL work, organization of a Company Member Committee (see page 12), and methods of speeding the peacetime work on standards, were among the subjects acted upon by the Standards Council at its meeting December 7. The Council is in charge of all ASA technical work.

The United States National Committee of the International Electrotechnical Commission reported to the Council that the IEC had postponed a meeting originally planned for December and is circulating information to all its member committees about the proposed new international standards association, announced in the November issue of INDUSTRIAL STANDARDIZATION. It is expected that a meeting of the IEC will be called about the time of the meeting on the new international standards association, planned for June in London, England.

Propose Scope for Textile Project

Also in the international field, the Council authorized the Advisory Committee on Ultimate Consumer Goods to send a proposed scope for an international project on textile test methods to the United Nations Standards Coordinating Committee. A selection of standards proposed by the ACUCG as a basis for the international work is to be sent to the UNSCC for consideration.

Further steps have been taken toward the formation of the Pan American Standards Committee, recommended by the Convention of Inter-American Development Commissions in 1944, it was reported. The cooperation of the South American Union of Engineering Associations and of the Mexican Government has now been officially requested. One of the objectives of the proposed committee is unification of the standards of the member countries.

In carrying out a program for speeding the peacetime work on standards, the Standards Council tentatively approved a proposed constitutional amendment through the necessary procedure for approval in order to make it possible to delegate some of its authority (see page 17). It also recommended that the Committee on Procedure study whether the Advisory Committee on Ultimate Consumer Goods is sufficiently representative of the consumer field to warrant giving it authority to act as sponsor for any project under its jurisdiction. This authority has already been given to the Electrical Standards Committee, which has assumed sponsorship for many projects in the electrical field.

Asks Authority to Sponsor Projects

Taking action on individual standards projects, the Standards Council voted to disband the Sectional Committee on Specifications for Zinc Coating of Iron and Steel, G8, and authorize the American Society for Testing Materials to carry on this standardization work through ASTM Committee A-5 under the proprietary method. This method gives the sponsor the authority to prepare within its own organization revisions of approved standards and submit them to the American Standards Association for approval. This action was taken by the Standards Council on condition that the ASTM would invite all members of Sectional Committee G8 who are not now members of ASTM Committee A-5 to become members of Committee A-5.

The Council approved the National Bureau of Standards and the American Society for Testing Materials as joint sponsors of a new project on Oxychloride Cement Flooring, A88.

Honor Osborne for "Outstanding Work"

In recognition of his "unusually outstanding work; his clear thinking, and conscientious attention to his job", the Standards Council gave Dr. Osborne, retiring chairman, a rising vote of thanks. The important administrative problems that came up during his administration made it necessary for him to give a greater proportion of his time to the work of the Standards Council than has usually been necessary in the past, F. M. Farmer declared in making the motion for the vote of appreciation.

Committee Authorized for Exchange Of Ideas by Company Standards Men

Standards engineers of ASA Company Members will again be able to exchange ideas on standardization questions as the result of action taken by the Standards Council and the Board of Directors at their meetings in December. At these meetings the Council and the Board authorized organization of a Company Member Committee to take the place of the Company Member Forum, which had functioned informally before the war as a discussion group. The meetings of the forum were so successful that there has been a growing demand during the past two or three years for its reactivation. Under the new authorization, the committee will now give Company Members an opportunity to exchange ideas on standards, to discuss their standards problems, and to make recommendations to the American Standards Association.

A small committee has been studying the question since the end of the war, and has come to the conclusion that in the future the group should be organized so that it can solve specific problems rather than placing its entire emphasis on general discussions.

"Although national organizations have played a very important part in developing and formulating standards, it has been in general the individual companies and corporations, and departments and establishments of the Federal Government which have applied the standards and used them in their work," the committee explains. "It is therefore the standards engineers of the various individual companies who frequently are first to recognize either certain very helpful details, or certain other points of a standard which make it difficult to apply and use in everyday procedures. The standards departments of these individual companies are therefore not only interested in the details of many standards but they are also in a peculiarly strategic position whereby they may advise those interested on the application of present standards or the practical need for further standardization work."

Although the methods by which the committee will operate have been referred to the Committee on Procedure before final approval by Standards Council, the organization of the committee is to proceed as rapidly as possible. A meeting of the special organizing committee is being held January 18 to make plans for the first meeting of the Committee.

The special organizing committee, which is working on plans for the Company Member Committee, has the following Membership:

Willis S. MacLeod, Acting Deputy Director, Procurement Division, U. S. Treasury Department, *Chairman*
William A. Bischoff, Bell Telephone Laboratories
Fred A. Compton, Purchasing Agent, Detroit Edison Company
H. A. Gillan, Eastman Kodak Company
H. W. Robb, General Electric Company
Thomas Spooner, Westinghouse Electric Corporation
William Staniar, E. I. duPont de Nemours & Company

Standards Training Important to Engineers

"SOME practical knowledge of standards should be part of the equipment of every fledgling engineer when he leaves college.

"For example, courses in drawing and machine design provide opportunity to teach the economics of using standard machine elements, and standard abbreviations, and where to find such standards. Similarly, the significance of specifications and methods of test can readily be taught in courses on engineering materials. Standard nomenclature and plenty of illustrations of the utility of standards should be found in textbooks and in lectures.

"An occasional special lecture by an outside engineer or faculty member can lend interest and inspiration.

"Training along such lines will help make the young graduate engineer more valuable to business and industry."

—HENRY B. BRYANS
President,
American Standards Association

ASTM Compiles Standards on Petroleum Products and Lubricants

The American Society for Testing Materials has published a 530-page compilation of ASTM Standards on Petroleum Products and Lubricants. It covers more than 80 specifications, tests, and definitions that have been standardized through the work of Committee D-2 on Petroleum Products and Lubricants. Fifty-six of these have been approved by the American Standards Association.

In addition to this committee report, there are several appendices concerned with the results of tests on methods for estimating maximum pour points of lubricating oils containing pour point depressants, and two proposed methods covering a test for maximum pour point and total olefinic and aromatic hydrocarbons in gasoline.

Copies of this 1945 compilation may be obtained from the ASTM, 260 South Broad Street, Philadelphia 2, Pa., at $2.75 per copy.

ICC Requires Standard Fire Extinguishers

The Interstate Commerce Commission announces that it does not intend to extend further temporary wartime relaxation of its safety regulation on fire extinguishers. Under this relaxation, substandard types of fire extinguishers were permitted as emergency accessories for trucks and buses.

Postwar Plans for Safety Standardization

By Cyril Ainsworth

SAFETY standards, coupled with other standards, very closely affect our every day living and we should more fully appreciate this relationship.

If you have to get up early in the morning, you find it is still dark at this time of the year. You therefore throw a switch to turn on the light. The switch, wiring, lighting fixtures, and other parts of the lighting system have been installed in accordance with the National Electrical Code, an American Standard. The wire used in the system conforms to American Standard specifications. The water for your bath and shave comes from a water system equipped with fittings and valves which are threaded, constructed, and installed in accordance with the requirements of American Standards. You put on clothes, the fabrics of which have been tested according to American Standards and you don linen laundered with machinery protected according to American Safety Standard requirements. For breakfast your coffee is made on a gas stove labeled to show that its construction and performance conform to the approved standard requirements for gas stoves, and the food you eat is taken from a refrigerator tested according to the American Standard method.

In going to work, if you drive or use a bus, you ride in a car inspected in accordance with American Standard inspection requirements. The windshield and other windows are constructed of safety glass made to conform to standard specifications. You or the bus driver observes the traffic signs and signals installed along the streets and highways and which are constructed and installed in accordance with American Standard Specifications. On reaching your place of business, you enter the building through doors which swing in the direction prescribed by standards. To reach the proper floor you go to your office by means of an elevator which has been constructed, installed, and inspected in accordance with American safety standards. The machine guards in your plants, the lighting, the sanitation, the direction signs, the fire and exit protection, the exhaust ventilation, and many other items designed for your protection and comfort are all in accordance with the best known practice as set forth in American Standards.

When business is over for the day, you return home with American Standards exerting their influence as they did when you went to work. Coming in from the cold air you find your home heated with heating boilers constructed according to the ASME Boiler Code. Finally the picture can be carried one step further and assuming that standards now under development are completed,

It is particularly appropriate that safety standardization should be discussed before a session of the American Society of Mechanical Engineers, Cyril Ainsworth, assistant secretary of the American Standards Association, told the Management and Safety Session at the ASME Annual Meeting November 29. (An abstract of Mr. Ainsworth's address is published here.) It is appropriate, he said, because the American Society of Mechanical Engineers has been a leader in the development of standards for many years. Safety standards have been an important part of its program. The ASME Boiler Code is probably the best known and one of the most important safety standards ever developed. Its first edition was published in 1916 and all the legal dequirements in effect throughout the country are based on this code. The ASME has sponsored and led the development of the Safety Code for Elevators, Dumbwaiters, and Escalators; the Safety Code for Cranes, Derricks, and Hoists; the Safety Code for Jacks; the Safety Code for Compressed Air Machinery; and the Safety Code for Mechanical Power Transmission Apparatus. In the development of some of these standards, it has had the assistance of other national organizations. All of these have been approved as American Standards. Others are under development.

This leadership and service to industry and government needs to be brought to the attention not only of the members of the ASME but also to the country at large, Mr. Ainsworth said. Such leadership by one of our great engineering societies emphasizes the importance of standardization and accident prevention and the relation of one to the other, he declared.

In his address Mr. Ainsworth outlined the many new problems that he foresees as offering a challenge to the postwar safety standardization program. The "standard" way is the way of the future, he concluded.

you will go to sleep on mattresses constructed, from a health point of view, in accordance with these future standards.

Such a picture of the relationship of standards to daily activity indicates that the best safety engineering talent available has been brought together for the purpose of assembling, in the most suitable form, those technical facts upon which all agree, in order that you, your families, your friends and neighbors can live happily and as free as possible from the dangers to life and health which our complex society produces. That is what safety standardization is all about.

American Standards Offer Best Collection of Technical Data

These standards and others developed by the ASME and other organizations under the procedures of the American Standards Association form the best collection of technical data that has ever been assembled. Therefore it is safe to assume that the subject we are discussing has been put on the program of this session to emphasize this fact and remind you that you can solve many of your safety engineering problems the standard way.

Safety standards provide an effective tool for managerial control of accidents.

Mr. Howard Coonley, chairman of the Board of the Walworth Company, in an article which he wrote for INDUSTRIAL STANDARDIZATION,[1] stated that the advantages which can be reaped from extensive use of standards could be summed up in the phrase "reducing things to simple routine". Standardization, Mr. Coonley stated, cuts down the pressure on executives from top to bottom of the organization, releasing them from the necessity of making many minor decisions. Standardization is a major key to administration.

Accident prevention as one phase of managerial control is no exception to these thoughts as expressed by Mr. Coonley. Many times safety engineers have said to me, "If I had only known that such a standard existed I could have saved a lot of time and more effectively determined the method of handling the situation." What procedure would you use for inspecting your elevators? Would you follow the advice which Mr. Reppert gave the members of the Metropolitan Chapter of the American Society of Safety Engineers recently and use the American Standard Practice for the Inspection of Elevators and the American Standard Elevator Code? If you have to buy a supply of safety shoes, how would you study the protective features of the shoes demonstrated to you by the salesman? Would you know what tests to apply to determine the resistance to blows which the shoes would sustain? How would you judge the quality of the product? These and many other questions have been presented to safety engineers. The standard specifications prepared jointly by manufacturers, safety engineers, governmental officials, and others provide the answers to all these questions. Standards for purchasing safety equipment provide effective managerial controls. Decisions are reached, quality is assured, costs are lowered, and most important of all, accidents are prevented.

What Will Safety Standardization Be in the Future?

So much for the importance of safety standardization. What can we expect in the way of service from future safety standardization work?

The breadth of coverage of the safety standards which have been made available to you during the past 25 years is great, but the field of usefulness is not complete by any means. We could simply name the subjects to which standardization will undoubtedly be applied in the future. Instead of doing that, let us examine one or two closely.

Specifications for safety shoes have already been mentioned. Unfortunately, however, they are not typical of the broad field of safety equipment.

How do you buy your safety equipment? Do you use the trial-and-error method? Do you depend upon the information given you by the salesman for the equipment manufacturer? Do you accept whatever your purchasing agent buys for you? Do you buy on specifications containing performance requirements designed to insure that the equipment will perform the functions for which it is intended? I am sorry to say that the last question, which prescribes the efficient method for buying safety equipment, must be answered in the negative. The reason is a simple one. Only a few such specifications have been prepared. Mention has already been made of the specifications for safety shoes. The American Standard Safety Code for Head and Eye Protection does contain some specifications for goggles, respirators, and other personal protective equipment. The Federal Specifications Committee, the Navy Department, the National Fire Protection Association, and a few industrial and commercial organizations have done some work in this field but, generally speaking, it is untouched.

May Apply Specifications to Purchase of Safety Equipment

Fortunately, it appears safe to predict that postwar standardization programs will include extensive work of this type. It is inevitable that the safety engineer and management generally will apply the same purchasing techniques to safety equipment that it applies to other equipment and materials that it buys. Industry erects its buildings according to specifications; it purchases its coal, steel, lumber, machines, tools, and thousands of other items according to specifications. Yes, industry hires its employes by applying job specifications to the task. If the use of purchase specifications has been found to be the efficient method for obtaining the things necessary to the conducting of a business, is it not safe to assume that use of specifications for the purchase of safety equipment is sound also? If that is so, then the practice of purchasing equipment on the basis of specifications will increasingly be followed. This will create a demand for such specifications, and they will be prepared.

It seems safe to assume that manufacturers and distributors of safety equipment will demand that such specifications be prepared. Many of them are furnishing scientifically designed devices and materials that afford complete protection to wearer or user. They are forced, however, to compete with many other manufacturers who, particularly during the war period, have entered the safety equipment field without sufficient experience as to the needs of industry and the best methods of designing devices which will give adequate protection against accident hazards. Specifications which place a floor on the quality of safety equipment and materials force such manufacturers to meet the specifications or to stop op-

[1] "Standards—Effective Tool for Managerial Control," INDUSTRIAL STANDARDIZATION, June, 1939.

erating. Thus, the manufacturer who has put much time, effort, and money into research, who has employed well trained salesmen to advise with industry, and who is sincerely endeavoring to provide the best possible service would not be forced to compete with a manufacturer who places inefficient equipment on the market at lower cost and who can provide little or no service.

Safety Equipment Standards Would Mitigate Legal Conflicts

The manufacturer will also demand equipment specifications to bring relief from conflicting rules, regulations, and practices of regulatory bodies which have power to approve or disapprove the equipment used by the industries under their jurisdictions. While American Safety Standards have done much to unify the legal requirements of the country it is still largely true that safety equipment acceptable to one legal jurisdiction may not be acceptable to another. This introduces production problems which should be solved by the preparation of performance requirements and methods of test acceptable to all concerned and the use of which would provide an open market throughout the country.

For the future, therefore, we can expect the application of the standardization technique to the thousand and one safety equipment items daily used by industry in its accident prevention work.

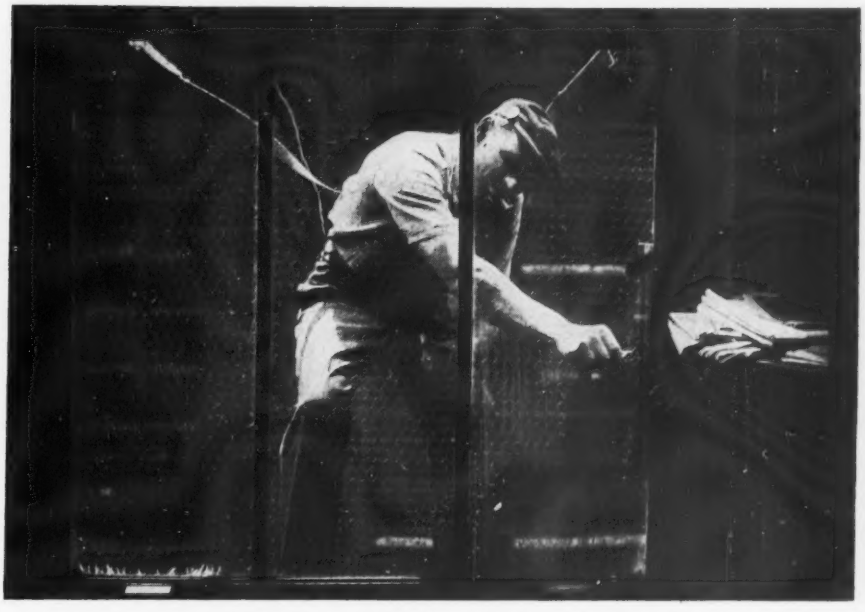
Discoveries, Inventions Give Rise to New Standards

From time to time the engineer or the scientist invents a new device, machine, or material which improves industrial processes, increases our comfort, or advances our standard of living. Many of these new devices or materials are hazardous in themselves or may become hazardous if incorrectly used. Electricity, for instance, is a hazardous commodity. But which one of us would advocate the discontinuance of the use of electricity? None of us would because we have learned how to use it correctly. The procedures governing the use of electricity have been written down in the form of safety standards. The National Electrical Code and the National Electrical Safety Code both approved as American Standards are the governing documents. Millions of kilowatts of electricity are daily used throughout the nation and in proportion to the exposure, rare it is that an accident is reported.

This form of control of materials, commodities, devices, and machines will, I predict, be greatly expanded in the post war world. A tremendous field is open for the use of the standardization technique to prescribe ways and means for the safe use and handling of the products of inventive genius and of industrial operations.

Even devices which have been designed to be used as safety devices may in themselves be hazardous and subject to standard control procedures. The x-ray, for instance, which has come into such extended use during the war period as a piece of industrial safety equipment can become a detriment instead of a boon to our progress, health, and comfort if its use is not properly controlled. The x-ray is used to determine the soundness of castings, the workmanship of welds, the existence of foreign particles in foods, the proper location of inserts placed in moulded products and in a hundred and one other ways. There is no question but that the x-ray greatly aided in the winning of the war. Fifteen to twenty years from now we will know how effectively from a health standpoint industry used this invaluable equipment.

Standardization of the principles of control is being carried on now—in these early days of the post war era. During the war a partial standardization program was completed through the publication by the American Standards Association of Part I of the Safety Code for The Industrial Use of X-rays covering general protection. Five additional parts are being prepared. They cover Radium, Methods, and Materials of Protection, Specifications for 400 Kv and lower, X-ray Protection for One and Two Million Volt Installations, and Electrical Protection.



The American Standard Safety Code for Window Cleaning, Z39-1933, is one of the many national standards that help to protect workers in especially hazardous occupations.

No better example exists of the way in which standardization can be used in the future to insure that everyone will have the best possible technical information in regard to the use of special equipment and materials developed and invented by our scientists and engineers than the standardization program in regard to the use of the x-ray.

Extensive Research Required for Preparation of Sound Standards

What else can we expect in the postwar world in regard to safety standardization? Well, I think we can expect extensive research programs to be carried on in order to obtain fundamental information necessary to the construction of a sound standard. This statement is not intended to indicate that research has not been carried on in the past. The research carried on by the committee in charge of the Safety Code for Elevators, Dumbwaiters, and Escalators is an excellent example of what has

been done in the field of research. It is evident, however, from the work already under way that research will be depended upon in the future in a very extensive way for the facts on which to build a standard.

The elevator committee conducted research at the National Bureau of Standards which resulted in the complete re-designing of elevator buffers. Not only did the research develop the facts around which to write into the elevator code the appropriate safety requirements in regard to buffers, but the manufacturers of this equipment learned the weaknesses in the designs which they had developed. Thus, they were able to change the designs and improve the efficiency of their product.

Several research programs are now under way. These are simply the forerunner of what is to come.

The National Safety Council through its Engineering Division—the American Society of Safety Engineers, is now endeavoring to obtain the facts in regard to the slipperiness of walkway surfaces and the methods of treating and maintaining floors and other surfaces so that the slipping hazard will be reduced to the minimum. It has been impossible to standardize the methods for removing such hazards because of the lack of fundamental information. This research program will develop the facts.

The Council is also endeavoring through research to get complete information in regard to safety belts, particularly window cleaners' belts. While many of the safety precautions to be followed in window cleaning have been standardized, it has not been possible to prepare complete specifications for belts because of the lack of facts.

Research Program Covers Use of Plastics in Safety Equipment

Another research program which the Council is conducting relates to the use of plastics in safety equipment such as head and eye protection equipment. Plastics came into extensive use in this way during the war and while a vast body of practical experience has been developed, we do not know all the answers by any means. When the research is completed, it is expected that specifications in regard to this material will be incorporated in the American Standard Safety Code for Head and Eye Protection.

The committee in charge of the development of the Safety Code for the Industrial Use of X-rays, to which reference has been made, is carrying on research to obtain data on which to design protection for one and two million volt installations. Such installations are now made, and severe exposure of this type makes it necessary that every possible ounce of protection data be made available to users of this equipment. These technical data are being incorporated into the new standard.

These research programs illustrate that we have passed from the adolescent stage of codification of personal opinion to the adult stage of codification of provable facts. Technical research in the field of safety engineering long since neglected is coming into its own. The post war period will see the introduction of many such programs.

Standardization Needed in Industrial Health Field

Another broad field of work to which standardization can be applied with a very large return in service is that of industrial health. The efforts of war production have introduced many new chemicals and substances which create toxic conditions for those working with them or handling them. Industry has performed miracles during the war in working with these materials with a minimum accident experience, but it has done so at great expense in time, effort, and money because of the lack of carefully digested information. The whole subject of elimination of hazards to the health of workers has not received the attention it deserves. This left us in a position of unreadiness when the great pressure of war came upon us. This must not be allowed to continue. We are in a chemical age. What we have seen in the way of new substances and new ways of using old substances is a mere drop in the bucket compared to what we may see in the years to come. It is my firm belief that many of these new substances and new uses of old substances will not in the years to come be introduced into our industrial operations until the hazards involved are fully known and controlled methods developed. These facts will be assembled through the standardization process and be made available as standard techniques.

Certain work has already been accomplished. The fundamentals of the design and construction of exhaust systems used to keep the atmosphere free from harmful substances have been standardized. Minimum requirements for sanitation facilities have been prepared. Allowable concentrations for a number of toxic dusts and gases have been established. Rules for safety in electroplating operations have been promulgated. Methods of handling the hazards of grinding, polishing, and buffing operations have been agreed upon. Many other items could be mentioned. The fact remains that allowable concentrations for literally hundreds of toxic substances need to be developed. Standard instructions on the safe methods of handling these substances must be prepared. Containers containing the toxic or flammable substances must be labelled according to a uniform pattern such as that which has been established by the Manufacturing Chemists Association in order that those who handle the substances will be fully aware of the hazards involved. These are but a few of the problems connected with maintaining the health of workers on a high level which must be and will be solved in the years ahead. Standardization again will very largely lead the way.

These are just a few of the fields of safety standardization activity which we can look forward to in the future. No mention has been made of safety in the design of homes, of highway safety, of the broad field of air, water, and land transportation, of training methods, aerodynamics, irritants, contaminants, radiation, sensitizers, and a dozen and one other such items which time will prevent our investigating today. However, there is still one further prediction in regard to safety standardization that I would like to make.

Industrial Leaders Must Cooperate in Standardization Program

Despite the twenty-five years of national safety standardization work that has been carried on, the wealth of technical information which this work has developed and made available to industry and the great variety of problems which daily face management in carrying forward accident prevention programs, only a very limited number of plant managers and safety engineers use the standards which have been developed, assist in the development of standards or in establishing the need for standards. Increasingly, however, there are evidences that the "standard way" is the way of the future.

Why do I say this? The answer is very simple. If you and Bill and John and this group and that group study a particular accident hazard, and separately publish the results, and I, in my desire to handle that hazard in my own plant, read these publications and find that complete agreement as to the facts and conclusions does not exist, I am confused and receive no help. The chances are I will then proceed to make my own studies and if I publish my findings I will add to the confusion for the next fellow. If, on the other hand, you and Bill and John and this group and that group, realizing that you have a common problem, get together around the table and reach agreement on the facts and conclusions and publish your findings jointly, then I use your publication with confidence that I have just the information I need. It is authoritative.

Just so with the "standard method." A standard is nothing more than a compilation of agreed-to data made authoritative through the consensus of acceptance.

The day of the prima donna in accident prevention is over. It costs too much to insist upon one's own individual ideas. Too much time is consumed in developing those ideas unless a pioneering job has to be done. The "standard way" is the "authoritative way." In the years to come the standard way will become the common way, the usual way, the universal way.

We in conjunction with our allies have just completed the job of overcoming two of the most cruel and barbarous enemies in history. The effort has cost us much in life, injury, money, time, and in many other ways too extensive to enumerate. We have an enemy right here at home almost as ruthless in its destructive ability. Industrial accidents cost 18,000 lives per year to say nothing of injury, lost time, and monetary loss. Are we willing to admit that we can join with others and win a cruel and bloody war such as we have just won but cannot control at home such a destructive force as accidents create? Certainly not. But to win the war at home requires the effort and cooperation of all of us just as it did to win World War II. We must use every tool and technique that is available to us. Standardization is one of the tools.

We are in attendance at this session because we are interested in efficient manufacture. The essence of efficient manufacture is orderly administration in the factory which has given rise to the science of production control. Accidents interrupt efficient manufacture and break down production control. Standardization means doing things in an orderly and well coordinated manner, which is one of the prime essentials in effective management. Standards, therefore, are not dead documents. They are alive, forceful, dynamic. Their use builds up effective management which accidents tend to pull down.

In the spirit of a motto of the American Standards Association which says, "Standardization is dynamic not static—it means to move forward together," let us move forward together using every weapon at our command to destroy accidents, as a menace to our society and to our economic life.

Amendment to ASA Constitution Being Considered to Speed Work

The first formal steps to speed approval of American Standards by giving the Standards Council power to delegate authority for approval of standards were taken by the Council at its meeting December 7. The Standards Council is made up of representatives of all ASA Member-Bodies and is in charge of the technical work of the ASA. It believes that some delay can be avoided if authority for approval of standards can be delegated to a small committee which will report to the Council. Any questions of policy or controversial matters are to be reviewed by the Council itself.

Before the Council can legally delegate such authority, an amendment to the Constitution must be approved giving it the power to do so. At its December 7 meeting, the Council voted that the following amendment should be sent through the necessary procedure for adoption:

"C7.3—The functions of the Council shall be to formulate rules for the development of standards and for the constitution of committees; to approve on behalf of the Association, either directly or through a designated agency, such standards as it or such a designated agency may find to be supported by a consensus, affirmatively expressed, of those substantially concerned with the standard; but not to formulate standards."

This proposed constitutional amendment must be submitted to the Standards Council at least 30 days before its next meeting; must be formally discussed at a meeting of the Council at least 10 days before it is submitted to the Board of Directors; and after the Board of Directors has approved it, it must then be submitted to letter ballot of the Member-Bodies.

Handbook Being Prepared By Plastics Industry

The Society of the Plastics Industry is preparing an SPI Handbook for the correlation of technical data in the plastics industry similar to standards already existing in other industries. The material is being compiled by some 250 technicians from the plastics field. The first chapter, the "Engineering Classification of Plastics Molding Materials" has already been circulated to the plastics and allied industries. Another chapter, soon to be released, is the "Design Standards for Inserts —Their Application in Plastics Parts." Other subjects to be covered include: Cementing and assembly of plastics, machining and finishing plastics, mold design and recommended steels, molding and forming of plastics parts, molding tolerances and dimensional stability, design criteria and testing plastics parts.

Much of the information contained in the various chapters has been obtained through the cooperation of the American Society for Testing Materials, the National Bureau of Standards, the Plastics Material Manufacturers Association, and the National Screw Machine Products Association.

SAE Aeronautic Meeting To Be Held in April

The SAE National Aeronautic meetings which were discontinued during the war will be resumed April 3 to 5 at New York City, the Society of Automotive Engineers announces. They will replace local war emergency meetings sponsored by SAE sections, which temporarily maintained SAE service of disseminating engineering data.

NBS Announces New Reference Fuel For Determining Knock Rating

New scale, defined in terms of triptane, normal heptane, and tetraethyl lead, covers entire range of motor fuels; propose "triptane number" for knock ratings

IN a paper presented at the winter meeting of the Society of Automotive Engineers in Detroit on January 11, 1946, Donald B. Brooks, chief of the Automotive Section of the National Bureau of Standards, reviewed the development of knock rating scales and described a new reference fuel made up from various proportions of triptane and normal heptane. He explained that today the antiknock quality of motor fuels is the outstanding characteristic by which they are graded. The average motorist realizes that when he pays more for a premium motor fuel, he is buying higher antiknock quality than is available in regular gasoline, he said. Many even have at least a practical understanding of the term "octane number" by which this quality is now expressed.

First Antiknock Yardstick in England

A quarter of a century ago, the first yardstick for measuring the antiknock quality of fuels was brought forth in England by H. L. Ricardo. He designed an engine, the compression ratio of which could be varied so as to cause knocking with any fuel then available. The point at which this occurred was called the highest useful compression ratio, abbreviated HUCR, and was used as a measure of the antiknock quality of the fuel.

As interest in knock rating spread, many laboratories used engines conveniently at hand in making their determinations. These varied from small engines designed to power farm-lighting plants to complete automobile and truck engines, and single cylinders of airplane engines. A variety of test procedures was used, and the results frequently were expressed in terms of the blend of high and low reference fuels equalling the test fuel in knock. As there was no uniformity either of test engine, test procedure, or reference fuels used, the results were meaningless except to the laboratory of their origin.

An urgent demand, therefore, arose for standardizing the essential details of knock rating. Under the direction of the Cooperative Fuel Research (CFR) Committee, a test engine was developed and standardized. After considerable study and discussion, the present octane-number scale was adopted. Isooctane, produced at the rate of millions of barrels a month as a large constituent of the aviation fuel that powered the recent war, was unknown 20 years ago. First prepared in 1926, it was found to be of much higher knock rating than any fuel of that time. Blended with normal heptane, a hydrocarbon poorer in knock rating than any fuel then used, it formed the octane-number scale. In this scale, the percentage of isooctane in blend with normal heptane which, in the standard engine, gives knock equal to that of a test fuel is called the octane number of the test fuel.

This scale has proved satisfactory for the knock rating of motor fuels, and naturally was soon applied to the rating of aviation fuels as well. When improvement in such fuels made them superior in antiknock quality to isooctane, the scale was physically extended by adding the powerful knock suppressor tetraethyl lead to isooctane, and knock ratings were expressed in terms of the amount of tetraethyl lead added to isooctane to equal the test fuel in antiknock quality. The resulting break in the knock-rating scale at 100 octane number, however, has been very troublesome. Many attempts have been made to extend the scale, and two or three have gained limited acceptance.

Propose New Scale to Cover Entire Range of Fuels

For some years, a panel of the CFR Aviation Fuels Division has been making an investigation of reference-fuel scales. After extensive research, it is now proposed to define a new scale in terms of blends of triptane, a relatively new compound of exceptionally high knock rating, and normal heptane, to both of which will be added about one-tenth of one percent of tetraethyl lead. Such a scale will cover the range from below present motor fuels to well beyond present and foreseeable future aviation fuels. If need be, it can be further extended readily and logically to the upper limit of antiknock quality. It is also proposed to express knock ratings in terms of "triptane number", analogous to octane number, for fuel blending work, and interchangeably in terms of a "Detonation Index" for engine work.

Manufacturer Calls for Standards for Small Sizes in Women's Dresses

A dress manufacturer who specializes in "petite" sizes recently pointed out the lack of standardization in his field, *Consumer News Digest* reports. He called attention to the fact that five-feet-three, five-feet-four, and five-feet-five are all being used. Department of Agriculture statistics show 77.72 percent of more than 10,000 women measured in a survey were five-feet-four or under. The manufacturer indicated the confusion that results when departments featuring "petite" sizes sell dresses designed for women of five-feet-four and under and sell coats for those of five-feet-five and under. Standardizaion should be introduced and adhered to by manufacturers in this range, he contends.

NBS Revises Standard for Douglas Fir Stock Doors

A revised Commercial Standard for Old Growth Douglas Fir Standard Stock Doors, CS 73-45, has been issued by the National Bureau of Standards.

This second edition covers four grades and includes layouts for house, garage, and cupboard doors and sidelights. It includes illustrations for 77 different standard stock designs from which selections can be made that will harmonize with various architectural treatments. The doors can be purchased at a considerable saving in cost as compared with custom-made doors of like quality and construction.

Printed copies of CS 73-45 may be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. for ten cents each.

National Bureau of Standards Offers Standard Samples for Buffer Solutions

The National Bureau of Standards has inaugurated a series of standard samples for use in the preparation of buffer solutions of known pH values from 0 to 60 C, and in the calibration of instruments for the measurement and control of pH. Three standards of this series are now available: acid potassium phthalate, potassium dihydrogen phosphate-disodium hydrogen phosphate, and borax (sodium tetraborate decahydrate). It is intended that the two phosphates be used together.

Orders should give both the number and the name of the sample wanted. No samples of smaller size than those listed are distributed, and the remittance should accompany the order.

The Bureau now issues more than 300 different kinds of standard samples, comprising steels, irons, ferroalloys, nonferrous alloys, ores, ceramic materials, certain high-purity chemicals, hydrocarbons, paint pigments for color, oils for viscometer calibrations, certain reference standards, and melting point standards. A complete list of the standards, fees, and other information is given in the Supplement to Circular C398, which can be obtained free of charge upon application.

Samples for Buffer Solutions Now Available

Sample number	Material	Recommended concentration, moles/liter of solution	pH value at 25C	Approx wt of sample, grams	Price per Sample
185	Acid potassium phthalate.....	0.05	4.005	60	$3.00
186	Potassium dihydrogen phosphate (186-I)	0.02	6.866	60	6.00
	Disodium hydrogen phosphate (186-II)	0.02			
187	Borax	0.01	9.177	30	3.00
139	Steel (N.E.8637) (approx 0.5 Ni, 0.5 Cr, 0.17 Mo)	....	.....	150	3.00
152	Steel (BOH) (Tin-bearing, approx 0.04 Sn)	....	.....	150	2.00
155	Steel (approx 0.5 Cr, 0.5 W).....	....	.....	150	3.00
156	Steel (N.E.9450) (approx 1.4 Mn, 0.5 Ni, 0.4 Cr, 0.13 Mo).....	....	.....	150	3.00

General Electric Makes Standards A Function of Executive Department

THE Standards Division of the General Electric Company has been transferred from the Apparatus Department to the Executive Department, with a corresponding increase in its scope and in its responsibility for coordinating standards throughout the entire General Electric Company. L. F. Adams is manager of the new Standards Division.

The transfer and enlarged scope of the Division were announced by H. A. Winne, who was recently appointed vice president in charge of engineering policy for the General Electric Company. Mr. Winne was formerly in charge of engineering for the Apparatus Department. As chairman of the engineering council, Mr. Winne coordinates the engineering, scientific, and research projects of all departments and all laboratories of the company. He is also responsible for company policy and activities in connection with standards and the coordination of matters relating to recruiting, education, and transferring between company units of all engineering personnel.

New Standards Advisory Committee To Determine Policies

Since his recent appointment, Mr. Winne has announced the establishment of a new Standards Advisory Committee with Mr. Adams as chairman, H. W. Robb as secretary, and with a representative from each department of the company. The committee will work in collaboration with the Standards Division and is charged with responsibility in the determination of sound policies to guide standards activities both within the company and in its relations with other companies.

The Standards Division was transferred from the Apparatus Division to the Executive Division in recognition of the advantages to be gained by coordination of various standards activities, the company announces, and in recognition of the importance of industry standards, which serve as a basis for purchasing and performance specifications of equipment and materials.

Division Responsible for Sound Standards Throughout Company

The principal objectives of the Division, as announced, are: (1) to promote the development and maintenance of sound engineering and manufacturing standards and practices throughout the company so that the maximum interchangeability, simplification of parts and practices, economy of manufacture, improvement of quality, and consistency of appearance will be secured for all types of G-E products; and (2) to cooperate in the development of appropriate industry standards, codes, and ordinances which pertain to the manufacture, sale, installation, and use of company products.

Mr. Adams, manager of the G-E Standards Division and chairman of the new Standards Advisory Committee, has just been elected vice chairman of the Standards Council of the American Standards Association. He has been a member of the Council since 1927, and is a member of the Electrical Standards Committee, the Safety Code Correlating Committee, and the Advisory Committee on Ultimate Consumer Goods and Chairman of the Board of Examination.

Colonel Davies Receives Legion of Merit Medal

Colonel Clarence E. Davies, secretary, American Society of Mechanical Engineers, has been awarded the medal of the Legion of Merit for meritorious service while on active duty with the Ordnance Department, U. S. Army.

As Chief of the Control Division, Office of the Chief of Ordnance, Colonel Davies was concerned with problems of policy, organization, methods, procedures, and statistical reporting practices for the Ordnance Department.

News from Other Countries

Australia to Standardize Plaster of Paris

Surgeons have had difficulty in the past in obtaining satisfactory results in using plaster of paris for splints and casts. The Institutional Supplies Committee of the Standards Association of Australia has appointed a special subcommittee of representatives of the British Medical Association, plaster manufacturers, and departmental representatives to study this problem, the Association bulletin states in a recent article. Surgeons, in addition to using different speeds of manipulation, found difficulty in obtaining satisfactory results, for example in immobilizing a hand or a foot on one occasion, and in preparing a body cast on another. From data obtained from the Australian College of Dentistry, the subcommittee as a first step proposed two types: (*a*) a "fast" plaster for small splints and casts, and (*b*) a "slow" plaster for large body casts. Extensive tests are being made in large hospitals to determine the physical properties of these two types in view of preparing workable standards.

Standardization Well Developed in USSR Construction

Standardization is one of the factors responsible for the success of the construction program in Russia, Dr. B. G. Skramtaiev, Director, General Institute of Building Industry Research of the Soviet Union, said at the American Soviet Conference held in New York City recently. Dr. Skramataiev gave a resumé of the work which is being done in research and in standardization in the Soviet Union.

"The success of construction in the USSR would be impossible without large scale research work, without standardization, without the wide production of prefabricated structures and building details. These fields are indeed well developed in the USSR," Dr. Skramtaiev declared.

"The standardization of construction has been done on a large scale in the USSR," Dr. Skramtaiev explained. "All building materials are standardized with the exception of the newest which have not been sufficiently tested. Also, all types of light reinforced concrete and steel construction are standard, as well as a part of wood structures. We have standards for designing common types of buildings and bridges and for all types of structures (reinforced concrete, steel, masonry, and wood)."

Brazilian Standards

The Brazilian standards association (Associação Brasileira de Normas Técnicas) has just approved 80 additional Brazilian standards, some of which were emergency standards during the war. They cover a wide variety of subjects.

Australia Starts Work On Plastics Standards

The growth of the plastics industry in Australia has been so great that standards will soon have to be prepared, says the Standards Association of Australia *Bulletin*. A step in this direction was taken at a conference on phenolic moldings for use in electrical and radio equipment held in October. The Standards Association also has received a request to develop standard methods of testing plastics, particularly by strength testing.

Cooperation—Keynote of Standards

"One of the most striking features of the second world war was the large measure of cooperation achieved by the United Nations as against the curious lack of combined effort exhibited by the various enemy forces," the *Bulletin* of the Standards Association of Australia declares in a recent issue. "In the final analysis, it was victory of United Nations cooperation over uncoordinated Axis efforts, each powerful in itself, but not powerful enough," the *Bulletin* states. "Now, however, the world is facing the task of rehabilitation of men and industry, and it remains to be seen whether the same spirit of cooperation can be continued in peace.

"Standardization itself being essentially a method of cooperation, it is pleasing to note that in this sphere projects begun during the war are being further examined and developed now, and that prewar avenues of international cooperation are being reopened."

SAA Lists New Housing Standards

The program of standards for postwar housing in Australia is well under way, the Standards Association of Australia announces. Among the standards being developed are several which cover plumbing supplies and fixtures. Specifications for bathtubs, cement concrete wash troughs, sanitary flushing cisterns, combination sinks and drainers, and brass sanitary and water fittings are among those being prepared.

New Books in ASA Library

QUALITY CONTROL CHART TECHNIQUE WHEN MANUFACTURING TO A SPECIFICATION by B. P. Dudding and W. J. Jennett, published by the General Electric Company, Ltd of England. Available from The Gryphon Press, Arlington, Virginia. Price, $1.00.

QUALITY THROUGH STATISTICS by A. S. Wharton, published by Philips Lamps, Ltd. Available through The Gryphon Press, Arlington, Virginia. Price, $1.50.

These two English booklets will be of interest to those concerned with the statistical approach to quality control and more particularly, with the use of quality control charts.

Left to right: Dr. Edward U. Condon, Director, National Bureau of Standards; Clifton E. Mack, Director, Procurement Division, Treasury Department; Dr. Lyman J. Briggs, Director Emeritus, National Bureau of Standards.

Federal Specifications Board Honors Dr. Briggs for Leadership in Standards

A luncheon in honor of Dr. Lyman J. Briggs, Director Emeritus of the National Bureau of Standards, was held by the Federal Specifications Board on Tuesday, December 11, at the Washington Hotel, Washington, D. C. Clifton E. Mack, Director of the Procurement Division of the Treasury Department, presented Dr. Briggs with a testimonial resolution passed by the Board thanking its former chairman for his "exceptional services and . . . the high inspiration and quality of his achievements and leadership" in the field of Federal standardization.

Also attending the luncheon were Dr. Edward U. Condon, Director of the National Bureau of Standards, E. C. Crittenden, guest of the Board from the Bureau of Standards, and the following members of the Board: Willis S. MacLeod, Executive Vice Chairman of the Board, from the Procurement Division; Samuel P. Kaidanovsky, Technical Consultant to the Board, the Procurement Division; Colonel B. L. Neis, representing the War Department; Leo H. Vullings, the Post Office Department; Captain W. C. Latrobe, Captain W. S. Newton, and R. L. DeGroff, from the Navy Department; Earl E. Eisenhart, the Interior Department; James Scammahorn and J. M. Lockname, from the Department of Agriculture; G. N. Thompson, Commerce Department; Taylor H. McCauley and Charles Eliff, Federal Security Agency; Ernest Hall and Garland L. Rounds, Federal Works Agency; and Miss Rose Siskind, Secretary to the Board.

Norman F. Harriman, former Technical Consultant to the Federal Specifications Board, is also being presented with a testimonial resolution by the Board following his retirement from the Federal service in October of this year.

The Federal Specifications Board, which is composed of representatives of ten Government agencies, works with the Standards Branch of the Procurement Division in the preparation of purchase specifications for supplies used by the various divisions of the Federal Government.

Dr Condon Is Named Chairman Of Federal Specifications Board

Dr Edward U. Condon, Director of the National Bureau of Standards, has been appointed chairman of the Federal Specifications Board, Clifton E. Mack, Director of the Treasury's Procurement Division, announced today. Dr Condon succeeds Dr Lyman J. Briggs, Director Emeritus of the National Bureau of Standards, who recently retired from the Government service.

In announcing the appointment, Mr. Mack said, "I think we are particularly fortunate in having Dr Condon as chairman of the Board because of his outstanding industrial and technical background, which includes his service as Associate Director of Research of the Westinghouse Electric Corporation. He was also a member of the original committee established by President Roosevelt to study the possibility of using atomic energy in warfare and recently was named Technical Advisor to the Special Senate Committee on Atomic Energy."

Another recent appointment is Samuel P. Kaidanovsky, Acting Chief of the Research and Technical Services Division, Standards Branch, Procurement Division, who will serve as Technical Consultant to the Federal Specifications Board. Mr. Kaidanovsky succeeds Norman F. Harriman, formerly Technical Assistant to the Director of Procurement, who retired from the Government in 1945.

The Federal Specifications Board was established by the Director of Procurement last August. Left to right: Dr. Edward U. Condon, Director, National Bureau of Standards; Clifton E. Mack, Director, Procurement Division, Treasury Department; Dr. Lyman J. Briggs, Director Emeritus, National Bureau of Standards.

ASTM Meeting to Feature Quality Control

One of the technical features of the Spring Meeting of the American Society for Testing Materials at Pittsburgh, February 26 and 27, relates to statistical quality control and its relation to specifications. It includes papers by Colonel L. E. Simon, Head, Ballistics Research Laboratory, Aberdeen Proving Grounds, and Joseph Manuele, Director of Quality Control, Westinghouse Electric Corporation. Colonel Simon is speaking on "Dollars for your Thoughts" and Mr. Manuele on "Use of Statistics in Writing Specifications".

A number of other authorities in this field of quality control and statistical analysis and interpretation of data will present discussions.

A new technical committee on quality control of materials has just been announced by the ASTM, to be headed temporarily by H. F. Dodge, Bell Telephone Laboratories, Inc.

New Standards from Other Countries Now Available in ASA Library

The following new and revised standards, received recently by the American Standards Association from other countries, may be borrowed by ASA Members from the ASA Library or purchased through the Sales Department.

Drafts of foreign standards are not for sale. They may only be borrowed.

Australia

Steel Sheet for Automobiles and Deep Drawing, Standard Schedule of No. G. 2-1945 75¢

Drafts of Proposed Standards

Basins—Cast Iron and Stamped Steel (Acid Resisting Porcelain Enamelled) and Pottery Ware for Housing Schemes No. A48

Hard Chromium Plating, Standard Specification for No. (E) K515 and Hard Chromium Plating of Steel, Standard Code for No. (E) CK. 501

Canada

Boilers and Pressure Vessels, Regulations for the Construction and Inspection of Second Edition, CSA B51-1945 50¢

Great Britain

New British Standards

Bell Transformers Excluding Transformers for Use in Mines BS832: 1945 75¢

Brackets and Supports for Lavatory Basins and Sinks (Dimensions and Workmanship) BS1255:1945 75¢

Building Materials and Components Handbook No. 3 $4.25

Castconcrete Copings BS1234:1945; Clayware Copings BS1233:1945; Natural Stone Copings BS1235:1945 75c for combined pamphlet

Concrete Interlocking Roofing Tiles BS550:1945 75¢

Concrete Railway Sleepers BS986:1945 75¢

Flush Wood Doors BS459:1945 (part 2) 75¢

Iron, Steel, and Non-ferrous Door Bolts BS1228:1945 75¢

Metal Casement Windows and Casement Doors for Domestic Buildings BS990: 1945 $1.25

Proof Test for Creep Quality of Carbon Steel Plate of Boiler Plate Quality BS1271:1945 40¢

Time and Wages Sheet and Pay Packet for the Building and Civil Engineering Contracting Industries, Standard form of BS1151:1945 75¢

Titanium Pigments (Rutile Type) for Paints and Titanium, White Types 6 and 7 BS1269:1945 75¢

Transport Gas Producer Fuels, Methods of test for BS1264:1945 75¢

Visual Indicator Lamps BS1050:1945 75¢

W.C. Seats (Plastics) BS1254:1945 40¢

Drafts of Proposed Standards

Beehives, Frames and Wax Foundation, Specification for CH (AG)2040 (superseding CH (AG) 342)

Burettes No. 846-1939, Specification for (Third Draft for Part 3) CH (C) 1800

Coal Tar Fuel 100 and Coal Tar Fuel 50 (Second Draft) CH (TPC)903

Coal Tar Fuel 200 (Second Draft) CH (TPC)904

Dirt and Vermin (Chapter X of the Code of Functional Requirements of Buildings) CP (B)505

Electric Overhead Travelling Cranes for General Use in Factories, Workshops, and Warehouses (Revised Draft) CH ME)2436

Lavatory Basins and Ancillary Equipment for Use in Schools, Specification for CH (BS/MOE)2669

Plastic Picnic Type Tableware, Specification for (Second Draft) CH(PLC) 2460

Pre-formed Insulating Materials for Central Heating and Hot and Cold Water Supply Installations (Fourth Draft) CH(SF) 2172

Pressed Steel Cutters, Pipes, Fittings and Accessories, Specification 1091 for (Draft Revision) CH (HIB) 2317

Single-Speed Polyphase Slipring Induction Motors for Lift Operation, Specification for (Third Draft) CH (ME) 1650

Sizes and Contents Arrangement for Manufacturers' Trade and Technical Literature (Building Industry) CH (M) 1921

Wash-out Pipettes, Specification for (Third Draft) CH (C) 1801

New Zealand

Doors NZSS E.106 40¢

Second Hand Sacks and Bags NZSS E.154 40¢

Shoe Polish NZSS E.156 40¢

Foreign Language Standards

The following standards are available solely in the language of the country issuing them. Only the titles have been translated into English.

France

Boiler Reamers; Long Series, Taper Shank E74-107 1944

Boiler Reamers; Short Series, Taper Shank E74-108 1944

Boring Machines, and Boring and Milling Machines, with Fixed Post: Principal Characteristics E62-022 1944

Boring Machines, and Boring and Milling Machines, with Movable Post: Principal Characteristics E62-022 1944

Continuous Feed Apparatus: Terminology E52-001 1944

Hand Hoists—Straight Gears; Standards Series E52-023 1944

Hand Hoists—"Weston" Differential Types; Standard Series E52-022 1944

Hand Reamers: Cylindrical, Finishing E74-103 1944

Hand Reamers: Expansion E74-104 1944

Lathe (Thread) Chasers; Interior and Exterior E66-051 1944

Long Taps with Long Shank E66-101 1944

Lubricating Devices:
Drip Feed Lubricator; Components E28-203 1944
Oil Level Gauge E28-205 1944
"Stauffer" Grease Cups E28-205 1944

Machine Tools — Classification E60-001 1944

Mechanography—Address Plates E55-401 1944

Planers: Principal Characteristics E62-023 1944

Pumps—Priming Funnels E44-051 1944

Reamers for Morse Tapers E74-110 1944

Refrigeration Equipment—Rectangular Ice Mold; Type 40 kg E35-302 1944

Refrigeration Equipment—Square Ice Mold: Type 25 kg E35-301 1944

Round Adjustable Threading Dies (Diameters 1 to 60 mm) E74-001 1944

Shell Reamers, Adjustable, with Removable Blades E66-002 1944

Shell Reamers, Non-Adjustable, for Machine; Conical Reaming E66-001 1944

Short Taps with Elongated Shank, for Cutting-Off Machine E66-102 1944

Solid Fuels—Determination of Total Sulfur M03-008 1944

Solid Fuels—Test of Crucible Swelling of Coking Coals M11-001 1944

Solid Fuels for Mobile or Semiportable Gas Producers, for Variable Output: Determination of the Density of Charge M03-009 1944

Solid Fuels for Mobile or Semiportable Gas Producers, for Variable Output: Screening Test and Determination of Percent of Dust M03-007 1944

Solid Fuels for Mobile or Semiportable Gas Producers, of Variable Output: Determination of the Tarry Matter Content M03-010 1944

Valves and Fittings for Buildings—Stop Valves and Faucets E29-083 1944

SAE to Change Names Of Aircraft Parts

Standardized nomenclature for aircraft powerplant parts is being developed by aeronautics division committees of the Society of Automotive Engineers to prevent confusion and facilitate production. Names of parts that have been reminiscent of anatomy, animals, and functions are to be replaced by nouns indicating appearances and purposes, the SAE announces.

Such words as arm, wrist, rib, knuckle, and dog would be used only as descriptive adjectives in connection with parts names. A similar job on automobiles, undertaken 40 years ago, was among the first of the SAE projects.

New Standards in ASA Library . .

For the information of ASA Members, the American Standards Association publishes a selected list of standards received by the ASA Library. The list below includes only those standards received recently which the ASA believes are of greatest interest to its members.

These standards may be consulted by Members at the ASA Library, or copies may be obtained from the organization issuing the standard. The address of the organization is included for convenience in ordering.

Associations and Technical Societies

Aircraft Industries Association (610 Shoreham Building, Washington, D. C.)

National Aircraft Standards for:

Bearing—Thin Shell, Open and Closed Ends, Regular and Extra Capacity, Single Row Small Needle NAS 295 September, 1945

Bearing—Thin Shell with Non-Separable Inner Race, Single Row Small Needle NAS 296 September, 1945

Installation of Plastic Fittings and Tubing, Specification for the NAS 280 May, 1944

Knob—Control, 1⅛ Dia x 1 3/16 Angular Semi-Round, Plastic NAS 125 (Revised November, 1945)

Knob—Control, 1¼ Dia x 13/16 Horizontal Semi-Round Plastic NAS 124 (Revised November, 1945)

Knob—Control 1¼ Spherical, Plastic NAS 198 August, 1945

Knob and Letter Assy—Control 1¼ Spherical Plastic NAS 199 August, 1945

Knob, one Inch Dia. Knurled Plastic Knob NAS 168 (Revised November, 1945)

Panel Assembly—Electrical Connector NAS 45 (Revised November, 1945)

Screws—Brazier Head, Phillips Recess Aluminum Alloy, Bronze and Alloy Steel, 8-32 NAS 220 (Revised November, 1945)

Screws—100 degrees Flush Head, Frearson Recess, Alum Alloy, Bronze and Alloy Steel, 10-32 NAS 213 (Revised November, 1945)

Spacers—Screw and Bolt NAS 43 (Revised November, 1945)

Tube Fittings Molded from Thermosetting Plastic Materials, Specification for NAS 278, February, 1944

Tubing Fabricated from Thermoplastic Materials, Specification for NAS 279 April, 1944

Tubing—Thermoplastic NAS 281 May, 1944

American Iron and Steel Institute (350 Fifth Avenue, New York 1, N. Y.)

Steel Products Manual Section 13 Cold-Rolled Carbon-Steel Strip (Revised November, 1945) 25¢

Steel Products Manual Section 16 Carbon-Steel Wire (Revised December, 1945) 25¢

American Petroleum Institute (50 West 50 Street, New York 20, N. Y.)

Casing, Drill Pipe, and Tubing API Std 5-A, 14th Edition August, 1945

Line Pipe Specification API Std 5-L, Tenth Edition August, 1945

Performance Properties of Casing and Tubing Supplement 1 October, 1945 to the Third Edition of API Code 5-C-2

Pipe Line Valves (Tentative) API Std 5-G-1, 3rd Edition February, 1945

Pipe Line Valves (Information on API Std 5-G-1) API Bulletin 5-G-1 February, 1945

Production Valves (Tentative) API Std 5-G-2, 4th Edition February, 1945

Production Valves (Information on API Std (5-G-2) API Bull 5-G-2 February, 1945

Ring Joints for Steel Flanges and Flange Unions for Use with API Tubular Goods (Tentative) API Std 5-G-3, 3rd Edition May, 1945

Threads in Fittings (Tentative) API Std 5-F, 4th Edition May, 1945

American Society for Testing Materials (260 South Broad Street, Philadelphia 2, Pa.)

Concrete and Concrete Aggregates July, 1945 $1.50

Electrical Insulating Materials (With Related Information) October, 1945 $3.25

National Electrical Manufacturers Association (155 East 44 Street, New York 17, N. Y.)

Black and Yellow Straight-Cut Varnished Cloth Pub. No. 45-110 December, 1945 25¢

Home Freezer Standards Pub. No. 45-106 September, 1945 25¢

Recommended Practice for Fabricating Laminated Plastics Pub. No. 45-107 December, 1945 25¢

Society of Automotive Engineers (29 West 39 Street, New York 18, N. Y.)

Aluminum Alloy Tubing (Seamless) Copper Magnesium Manganese (24S-0) AMS 4087

Copper Magnesium Manganese (24S-T) AMS 4088B

Hydraulic, Copper Magnesium Manganese (24S-T) AMS 4086

Magnesium Chromium (52S-0) AMS 4070C

Magnesium Silicon Chromium (53S-W) AMS 4076B

Magnesium Silicon Copper (61S-0) AMS 4080C

Magnesium Silicon Copper (61S-T) AMS 4082C

Alumimum Tubing (Seamless) (2S-½H) AMS 4062A

Boiler, Steam Type System ARP 145

Dehydrating Agent, Silica Gel AMS 3420B

Dehydrator Plug AS 8A

Dehydrator Plug (Cable Supporting) AS 7B

Heat Exchanger, Exhaust Direct Air Type ARP 144

Indicator—Humidity, Large AS 10B

Indicator — Humidity (Medium) AS 347

Nomenclature—Engine Cooling Fan AS 194

Preservation of Engines AMS 2570A

Protector and Cable Attachment, Spark Plug Terminal (Aircraft Engine) AS 9B

Tolerances, Aluminum and Aluminum Alloy Tubing AMS 2203A

The Textile Color Card Association of the United States, Inc. (200 Madison Avenue, New York 16, N. Y.)

U. S. Army Color Card (Approved and Accepted by the Quartermaster General, U. S. Army as being in accord with the standards on file in that office)

The Official Colors for Arms and Services Issued 1943

Sewing Threads The Official Standardized Shades of Olive Drab, Khaki, and Drab Fourth Edition Revised 1945

Slide Fastener Tapes, Standard Shades for Supplement to U. S. Army Specification No. 100-31 1945

U.S. Government

Wherever a price is indicated, the publication may be secured from the Superintendent of Documents, Government Printing Office, Washington 25, D. C. In other cases, copies may be obtained from the government agency concerned.

Specification Division U. S. Treasury Department, Washington 25, D. C.

Federal Specifications are prepared for use by all government departments and establishments in their purchases. Copies are available from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 5 cents each. Requests should be accompanied by cash, check, or money order.

As a service to Company Members, the ASA maintains a sale file of all Federal Specifications. These

specifications can be purchased from the ASA Sales Department.

Federal Specifications

Acid, Sulfuric, Technical-Grade O-A-115 November, 1945
Ammonium-Chloride (Sal Ammoniac); Technical Grade (Amendment 1) O-A-491a October, 1945
Base: Oil, Cutting, Sulfur, and Chlorine Containing VV-B-136 November, 1945
Cable, Cord, and Wire; Electric, Flexible, Cotton-Covered (General Service) (Amendment 2) J-C-86 November, 1945
Cans; Safety (For Gasoline, Naphtha, etc.) (Amendment 2) RR-C-92 Sept., 1945
Chrome-Green; Pure, Dry (Paint-Pigment) (Amendment 1) TT-C-235 November, 1945
Conduit; Steel, Rigid, Enameled (Amendment 1) WW-C-571 November, 1945
Copper; Ingots (Superseding QQ-C-521a) QQ-C-521b October, 1945
Copper-Phthalocyanine-Blue; Dry (Paint-Pigment) (Amendment 1) TT-C-610 October, 1945
Drums; Steel, Type 5B (For Liquid Petroleum Products) Superseding RR-D-729) RR-D-729a October, 1945
Enamel; Drum-Coating, Exterior, Rust-Inhibiting, Solvent-Resistant (Superseding TT-E-485) TT-E-485a October, 1945
Holders, X-Ray Film; Exposure, Dental GG-H-606 October, 1945
Hose, Fire; Cotton, Rubber-lined (Amendment 3) ZZ-H-451a October, 1945
Insulation; Laminated-Asbestos (Amendment 1) HH-I-561b October, 1945
Insulation (Vegetable or Wood Fiber); Blanket, Felt, and Loose-Fill (Amendment 1) HH-I-571a October, 1945
Iron - Blue; Dry (Paint - Pigment) (Amendment 1) TT-I-677 November, 1945
Magnesia; Block, Cement, and Pipe-Covering (Molded) (Amendment 1) HH-M-61a October, 1945
Mortars and Pestles; Glass and Porcelain GG-M-621 November, 1945
Oil: Cutting; Mineral-Fatty-Oil-Blend Superseding VV-O-251) VV-O-251a October, 1945
Oil, Cutting, Sulfurized-Fatty-Mineral VV-O-275 November, 1945
Packing; Fiber, Hard, Sheet (Superseding Fed Spec HH-P-91) HH-P-91a September, 1945
Paint, Varnish, Lacquer, and Related Materials; General Specification for Sampling and Test Methods (Amendment 1) TT-P-141a September, 1945
Pigments-In-Oil; Paint-Colors (Amendment 1) TT-P-381 October, 1945
Plaster; Gypsum (Amendment 1) SS-P-402 October, 1945
Steel; Carbon and Alloy, Bars (Amendment 2) QQ-S-671 September, 1945
Tape; Friction (Superseding Emer Alt Fed Spec E-HH-T-101a 5-14-43) (Amendment 1) HH-T-101a November, 1945
Thinner; Paint, Volatile Mineral Spirits (Petroleum-Spirits) (Superseding TT-T-291) TT-T-291a October, 1945
Toluidine-Red-Toner; Dry (Paint-Pigment) (Amendment 1) October, 1945
Varnish; Spirit (Shellac Varnish Replacement) (Amendment 1) TT-V-130 October, 1945
Wrenches, Bolt, and Nut; Socket (Superseding Fed. Spec GGG-W-641) GGG-W-641a August, 1945

NBS Acts on Standards and Simplified Practice Recommendations

Commercial Standards

Announced by the Division of Trade Practice, National Bureau of Standards

Men's Sport Shirt Sizes, Commercial Standard CS128-45—

This Commercial Standard, just issued, provides standard size designations, methods of measuring, and standard minimum measurements for men's sport shirts made from woven fabrics.

It was established to eliminate the confusion resulting from a diversity of size markings and sizing systems for sport shirts other than those made with neckbands and carrying regular dress shirt size marks, such as 14, 14½, 15, 15½, 16, 16½, and 17.

The printed edition carries a recommended wording for guarantee labels, together with a brief history of the activities that led to the development of the standard, and a list of official acceptors.

Copies of CS128-45 are obtainable from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 5 cents each.

Mineral Wool, Testing and Reporting, Recommended Commercial Standard, TS-4030—

A Recommended Commercial Standard for Industrial Mineral Wool Products, All Types, Testing and Reporting, is being circulated to interested organizations for acceptance. This proposal was submitted by the Industrial Mineral Wool Institute and revised in accordance with comment received. The standard is intended to provide uniform methods for testing and reporting the physical and chemical properties of mineral wood products made of rock, slag, or glass, and describes equipment required to produce standard results. Methods of test are included.

Old Growth Douglas Fir Standard Stock Doors, Commercial Standard CS73-45—

The third edition of this standard has been published and copies are now available from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 10 cents each.

Cast Aluminum Cooking Utensils (Metal Composition), Recommended Commercial Standard TS-4021—

Recommended Commercial Standard for Cast Aluminum Cooking Utensils, TS-4021, is being circulated among interested organizations for acceptance. It was submitted to the National Bureau of Standards by the Cast Division, Aluminum Wares Association.

The purpose of this standard is to establish standard specifications and methods of test for the chemical composition of cast aluminum cooking utensils to minimize staining and corrosion under conditions of normal use.

Pipe Nipples; Brass, Copper, Steel, and Wrought-Iron, Commercial Standard CS5-40, Recommended Revision of—

A recommended revision of Commercial Standard CS5-40, Pipe Nipples; Brass, Copper, Steel, and Wrought-Iron, has been submitted by the National Association of Pipe Nipple Manufacturers and approved by the Standing Committee of the National Bureau of Standards. It is now being circulated for acceptance.

Simplified Practice Recommendations

Announced by the Division of Simplified Practice, National Bureau of Standards

Cast-Brass Solder-Joint Fittings, R212-45—

Printed copies of this Simplified Practice Recommendation are now available, and can be obtained from the Superintendent of Documents, Government Printing Office, Washington 25, D. C., at 5 cents each. The recommendation sets up a stock list of cast-brass solder-joint fittings.

Hard Edge, Flexible Back, Metal Cutting Band Saws, R214-45—

This Simplified Practice Recommendation has been approved for promulgation, effective from December 17, 1945. Until printed copies are available, free mineographed copies may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington 25, D. C.

Steel Rivets, Proposed Simplified Practice Recommendation—

A proposed Simplified Practice Recommendation for Steel Rivets has been submitted to producers, distributors, and users for consideration, comment, and approval. It was developed in cooperation with the industry, and contemplates the establishment of a voluntary simplified list of stock production sizes (lengths and diameters) for small rivets having round head, flat head, truss or wagon box head, and countersunk head, also belt rivets, tinners' and coopers' rivets, and large rivets with button head. Mimeographed copies may be obtained from the Division of Simplified Practice, National Bureau of Standards, Washington 25, D. C.

ASTM Reorganizes Administrative Staff

The Executive Committee of the American Society for Testing Materials has reorganized the headquarters staff of the Society. The new setup is to serve as a framework for the expansion of the technical staff, especially with respect to the technical activities and editorial departments. The office of Secretary-Treasurer was changed to Executive Secretary; and the following positions were established: Assistant Executive Secretary; Technical Secretary as head of a "Technical Activities Department"; Editor as head of an "Editorial Department"; Assistant Secretary as head of a "Field and Secretarial Department"; Treasurer as head of a "Finance Department"; and Office Manager as head of an "Office Management Department".

In addition, the Executive Committee reaffirmed the positions of Standards Editor and Assistant Editor and provided for the appointment of two Assistant Technical Secretaries in the Technical Activities Department.

All of these newly designated positions have been filled except for that of Office Manager. Those named are: C. L. Warwick, Executive Secretary; R. E. Hess, Assistant Executive Secretary, Technical Secretary, Editor; J. K. Rittenhouse, Treasurer; R. J. Painter, Assistant Secretary; P. J. Smith, Assistant Technical Secretary, Standards Editor; C. S. Cole, Assistant Technical Secretary; and G. A. Wilson, Assistant Editor.

Standards Needed to Apply New Power Sources

Extensive simplification and standardization are needed if the new power sources and materials are to be applied successfully in industry, the Society of Automotive Engineers announces. Engineers are already surveying the jet and turbine propulsion field and investigating potential uses for hydraulic devices, the SAE reports. Substantial progress must be made, however, in metallurgy, fuel economy, and engineering improvements to further work in jet propulsion of aircraft, it declares. Current talk of applying hydraulic controls is pointed towards making farm tractors more versatile.

ASA Standards Activities

American Standards

American Standards Approved Since Our December Issue

Pipe Threads, B2.1-1945 (Revision of B2.1-1942)
Sponsors: American Gas Association; American Society of Mechanical Engineers

Testing Shellac Used for Electrical Insulation (ASTM D 411-44; ASA C59.18-1945) (Revision of ASTM D 411-42; ASA C59.18-1944)
Sponsor: American Society for Testing Materials

Vulcanized Fibre (ASA C59.20-1945; NEMA 43-87)
Sponsor: American Society for Testing Materials

American Standards Reaffirmed Since Our December Issue

Electrical Indicating Instruments (ASA C39.1-1938; AIEE 33-1938) Reaffirmed 1945
Sponsor: Electrical Standards Committee

Standards Being Considered by ASA for Approval

Drawings and Drafting Room Practice, Z14.1
Sponsors: American Society of Mechanical Engineers; Society for the Promotion of Engineering Education

Gear Tolerances and Inspection, B6.5
Sponsors: American Gear Manufacturers Association; American Society of Mechanical Engineers.

Method for Determining Photographic Speed and Speed Number, (Revision of Z38.2.1-1943)

Method for Determining Spectral Sensitivity Indexes and Group Numbers for Photographic Emulsions, Z38.2.4

Diffuse Transmission Density, Z38.2.5
Sponsor: Optical Society of America

American War Standards

American War Standards Approved Since Our December Issue

Auxiliary Finder Aperture for 35-Mm Motion Picture Cameras, Z52.69-1945

Leaders and Trailers for 16-Mm Sound Motion Picture Release Prints Made From 16-Mm Original Material, Z52.31-1945

War Standards Under Way

Allowable Concentration of Trichloroethylene, Z37

Photography and Cinematography, Z52

Motion Picture Cameras

- Location and Size of Picture Aperture of 16-Mm Sound Motion Picture Camera, Z52.47
- Location and Size of Picture Aperture of 16-Mm Silent Motion Picture Cameras, Z52.48
- Mounting Dimensions for 16-Mm Camera and Recorder Film Magazines (400-Foot Gear-Driven Type), Z52.52
- Mounting Dimensions for 16-Mm Camera and Recorder Magazines (200-Foot Belt-Driven Types), Z52.66
- Mounting Dimensions for 16-Mm Camera and Recorder Magazines (400-Foot Belt-Driven Type), Z52.67
- Registration Distance and Mounting Dimensions for 16-Mm Motion Picture Camera Lenses, Z52.50
- Base Point for Distance (Focusing) Scales for Lenses for 16-Mm Motion Picture Cameras, Z52.51
- View Finders for 16-Mm Motion Picture Cameras, Z52.49

Motion Picture Projection Equipment

- Class II Service Model 16-Mm Sound Motion Picture Projection Equipment, Specification for, Z52.13

Motion Picture Release Prints

- Leaders and Trailers for 16-Mm Sound Motion Picture Release Prints Made from 16-Mm Original Material, Z52.31
- Printer Loss in 16-Mm Sound Motion Picture Prints, Method of Determining, Z52.40

Motion Picture Test Films

- Marble Test Film Used for Testing 16-Mm Sound Motion Picture Equipment, Specification for, Z52.32

Still Cameras

- Exposure-Time Markings for Between-the-Lens Shutters, Z52.62
- Exposure-Time Markings for Focal-Plane Shutters, Z52.64
- Performance Characteristics of Focal-Plane Shutters Used in Still Cameras, Method of Determining, Z52.65
- Performance Characteristics of Between-the-Lens Shutters Used in Still Cameras, Method of Determining, Z52.63

Still Printing Equipment

- Enlarger, Photographic, Specification for, Z52.23

Radio Noise, Methods of Measuring, C63

Safety Code for the Industrial Use of X-Rays, Z54
- Use and Storage of Radium in the Field of Industrial Radiography, Part II
- Methods and Materials of X-Ray Protection, Part III
- Specific Applications for 400 Kv and Lower, Part IV
- Specific Applications of One and Two Millions, Part V
- Electrical Protection, Part VI

Screw Threads, B1
- Buttress Threads
- High-Duty Studs in Light Alloys
- Instrument Threads
- Stub Acme Threads
- Unification of Screw Threads

Women's Industrial Clothing, L17
- Jackets for Outdoor Wear (Slide Fastener Closure), L17.6
- Jackets for Outdoor Wear (Fly-Type Button Closure), L17.5

Wood Poles, 05
- Ultimate Fiber Stresses of Wood Poles, 05aWS

Joint Army-Navy Committee on Standard Drawing Practice has submitted a number of proposed additions and revisions, and additional material has been collected from a selected industry group of approximately 350. A meeting of the committee is being scheduled for some time during February, at which time it is planned to organize working committees to study the symbols under each specific subject heading.

Screw Threads, B1—

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers.

A meeting of the sectional committee on screw threads was held during the Annual Meeting of the American Society of Mechanical Engineers November 27, 1945. The sectional committee received reports from the chairmen of its subcommittees and from the chairmen of the subcommittees of the ASA War Committees on screw threads.

On Acme Screw Threads, it was reported that revisions in the American War Standard had been agreed to by the delegates to the international conference on screw threads in Ottawa, Ontario, September 24-October 6, 1945. These revisions were referred to a subcommittee for incorporation in a new draft of the proposed standard.

A long list of letter symbols for screw and pipe threads had been accepted by the delegates to the Ottawa conference, it was reported, and it was recommended that this list be made available immediately in printed form. The recommendation was referred to a subcommittee for action.

A statement on the status of the American War Standard on buttress screw threads was presented. The draft standard presented at the Ottawa conference needs revision to bring it into agreement with the decisions taken at Ottawa, it was reported. A new draft is being prepared for this purpose.

The chairman of the subcommittee on instrument screw threads reported on the various projects having to do with this type of screw. Agreement had been reached at the Ottawa conference on proposals for several types of instrument screws and these proposals are being considered by the subcommittee in the development of proposed standards.

A report was presented on the decisions of the Ottawa conference on unification of screw thread form. Following a lively discussion, it was agreed that revision of the American Standard, Screw Threads for Bolts, Nuts, Machine Screws, and Threaded Parts, B1.1-1935, should be begun immediately to incorporate certain of these agreements as well as other matters which had been under consideration for some time. The question of the revision was referred to the subcommittee on this subject for action.

Report of International Conference to Be Published

A complete report of the actions taken at the international conference on screw threads at Ottawa last fall will be published in the February issue of INDUSTRIAL STANDARDIZATION.

1945 Index Scheduled For Publication In February Issue

The American Standards Association announces that, in line with the policy followed in previous years, the Index to Volume 16, January-December, 1945, of INDUSTRIAL STANDARDIZATION will be published as Part 2 of the February issue.

Plain and Lock Washers, B27—

Sponsors: American Society of Mechanical Engineers; Society of Automotive Engineers.

This sectional committee held a meeting on November 28, 1945.

Small Tools and Machine Tool Elements, B5—

Sponsors: American Society of Mechanical Engineers; National Machine Tool Builders' Association; Society of Automotive Engineers.

This sectional committee held its annual meeting November 29, and heard reports submitted by the 24 technical committees, some of which had met earlier in the week. These were No. 4, Spindle Noses; No. 6, Working Ranges of Machine Tools; No. 9, Punch Press Tools; No. 10, Forming Tools and Holders; No. 13, Splines and Splined Shafts; No. 17, Nomenclature of Small Tools and Machine Tool Elements; and No. 24, Carbide-Tipped Milling Cutter Bodies.

Technical Committee No. 23 reported that it had completed its work on Machine Pins. This proposed standard is now ready to be set in type and distributed to industry for comment and criticism.

Standards Help Buyers Of Protective Equipment

The purchasing of safety equipment and of the equipment necessary to maintain a healthful workplace is a complex function, and it is not easy to determine what to buy especially if no standards are available, Andrew H. Phelps, vice president in charge of purchasing, Westinghouse Electric Corporation, declares in an article in *Safety Engineering*, December 1945.

"In deciding what to buy," he explains in his analysis of the problem, "it seems to me that all purchased products relating to the health of the workplace can be divided into three general classes:

"1. Those which are tested and approved by impartial and independent organizations whether public or private.

"2. Those which are manufactured to standards such as those provided by the American Standards Association but which have not actually been tested and approved and carry no official seal of approval.

"3. Those which conform to no standards and for which no tests have been made. In other words, those items to which the motto 'Caveat Emptor' (Let the Buyer Beware) particularly applies."

It is this last large group of materials for which the purchasing agent must rely on his own individual resources and those of his own organization, since there is no official body to test and approve this class of materials nor are there any published standards upon which he can rely, he explains.

I. J. Fairchild Retires as Chief of NBS Trade Standards

I. J. Fairchild, chief of the Trade Standards Division, National Bureau of Standards, since this division was set up in 1929, retired November 30. Mr. Fairchild exercised his optional retirement privilege after 30 years of Government service, 23 of which were spent at the Bureau.

Mr. Fairchild transferred to the Bureau from the Navy Department in 1922 as a mechanical engineer on the staff of the Mechanics and Sound Division. His Technologic Paper T319 on the holding power of wood screws, based on tests of over 10,000 screws in seven commonly used woods, published in 1926, is still regarded as authoritative and has been quoted in many handbooks. In the drafting of Commercial Standards he has always carefully considered the results of laboratory work bearing on the subject, the National Bureau of Standards states. It is understood that he plans to enter trade association work, so that, in a sense, he will still be carrying on the program commenced at the Bureau which has led to the adoption of Commercial Standards covering 130 commodities.

F. W. Reynolds, who has been chief of the Chemical and Miscellaneous Products Section and assistant chief of the Division, has been designated as acting chief.

News About ASA Projects

Building Code Requirements for Fire Protection and Fire Resistance, A51—

Sponsors: National Board of Fire Underwriters; National Fire Protection Association.

At a meeting of the sectional committee held December 13, subcommittees reported on definitions and classifications; interior finishes; roofing; protection of openings; fire resistance ratings; height and area limitations; classification of occupancy; and exterior finishes.

The committee voted that the classification of types of construction should include the fire resistance requirements for all the important elements of buildings or structures.

A new subcommittee on height and area limitations is now being organized. Its program is expected to include the preparation of requirements covering limitations as to location of buildings, both in fire zones and on property, and limitations on the heights and areas of buildings.

Oxychloride Cement Flooring, A88—

At its meeting December 7, the Standards Council approved the National Bureau of Standards and the American Society for Testing Materials as joint sponsors for this new project.

Cylindrical Fits, B4.1—

The ASA War Committee on Cylindrical Fits has submitted a final report on its work to the Sectional Committee on Allowances and Tolerances for Cylindrical Parts and Limit Gages to serve as a basis for this committee's further work on the development of an American Standard on Limits and Fits for Engineering and Manufacturing. With the conclusion of hostilities, the War Committee has ended its work and disbanded. The ASA will present a final report to the Civilian Production Administration, successor to the War Production Board at the request of whom the work was undertaken.

Gear Tolerances and Inspection, B6.6—

Sponsors: American Gear Manufacturers Association; American Society of Mechanical Engineers.

The Executive Committee of the Mechanical Standards Committee has voted that the proposed standard on gear tolerances and inspection be sent to letter ballot of the Standards Council for approval as American Standard.

National Electrical Code, C1—

Sponsor: National Fire Protection Association.

A five-day meeting of the NFPA Electrical Committee (the ASA sectional committee on the National Electrical Code) was held in October to consider proposals for the revision of the 1940 edition of the Code. It is expected that revision will be approved and published in 1946. Careful consideration was given to the numerous proposals that had been filed with the committee, and action was taken on the reports of the various Article Committees. As soon as necessary editorial work can be completed, the new edition of the Code will be submitted to the National Fire Protection Association for adoption and to the American Standards Association for approval as an American Standard. It then will be published.

A few important changes agreed upon by the committee include the following:

The Type "S", or so-called non-tamperable, fuses were made a permanent requirement applying to new installations.

A complete new treatment of Article 500, "Hazardous Locations," was adopted to provide for a greater variation in the type of electrical installation depending upon the extent and character of the hazard. The purpose of the new treatment, it was announced, is to provide for adequate safeguards appropriate to the degree of hazard in any individual location without undue inconvenience or unnecessary expense.

The provision prohibiting the use of certain common types of wiring in contact with combustible thermal insulating materials was relaxed.

Changes were made in the provision on rubber-covered wires in the interest of simplification, reducing the number of different types of insulation recognized.

The date upon which the new Code requirements will be put into effect in the various jurisdictions cannot as yet be predicted, the National Fire Protection Association announces. It may be anticipated, however, it declares, that inspection authorities in general will not put the new Code requirements into effect until after final publication of the Code and a reasonable interval of time to permit all those concerned to become familiar with the new provisions. This will probably be sometime in the latter part of 1946.

Vacuum Tubes for Industrial Purposes, C60—

Sponsor: Electrical Standards Committee.

The Sectional Committee voted at its meeting December 20 to recommend to the Electrical Standards Committee that its scope be enlarged by deleting the words "for power and industrial applications" and changing the word "vacuum" to "electron". It also recommended that additional groups be considered for membership in line with the enlarged scope.

Specifications for Zinc Coating of Iron and Steel, G8—

Sponsor: American Society for Testing Materials.

The Standards Council voted at its December 7 meeting to disband the Sectional Committee on Specifications for Zinc Coating of Iron and Steel, G8, and to authorize the American Society for Testing Materials to carry on the project as sponsor under the proprietary method. The ASTM project is known as A-5. This action was taken on the condition that the ASTM would extend invitations to all members of Sectional Committee G8 who are not now members of ASTM Committee A-5. The Standards Council also requested that ASTM Committee A-5 give immediate attention to protection of water tanks, which needs urgent attention, according to information before the Council.

Textile Safety Code, L1—

Sponsor: National Safety Council.

A meeting of the sectional committee has been called for January 29 to consider the revision of the Textile Safety Code, L1-1929.

Chemical-Resistant Gloves, L18.29-1945—

Thirty copies of the American War Standard approved recently have been made available to the Procurement Division, U. S. Treasury Department for consideration by the Technical Committee on Safety Equipment in preparing a Federal Specification.

Safety Code for the Protection of Heads, Eyes, and Respiratory Organs, Z2—

Sponsor: National Bureau of Standards.

The sectional committee is planning to review the American Standard approved in 1938 for possible revision. The Canadian Standards Association, which has been requested to prepare a similar standard for Canada, plans to use the American Standard as a basic document in preparing the Canadian standard, and has asked to be kept informed concerning possible revisions. The CSA has invited the American Standards Association to appoint a liaison representative on the Canadian committee.

Photography, Z38—

Sponsor: Optical Society of America.

Two important new standards that provide for the first time a standard definition for diffuse transmission density, and methods for determining spectral sensitivity indexes and group numbers for photographic emulsions are now before the Board of Examination for recommendation to Standards Council. In addition, an extension of the basic American Standard Method for Determining Photographic Speed and Speed Number to cover speed film is also being considered. The three standards are:

- American Standard Method for Determining Photographic Speed and Speed Number (Proposed revision of Z38.2.1-1943)
- Method for Determining Spectral Sensitivity Indexes and Group Numbers for Photographic Emulsions (Proposed American Standard) Z38.2.4
- Diffuse Transmission Density (Proposed American Standard) Z38.2.5

Graphical Symbols for Use on Drawings, Z32—

Sponsors: American Institute of Electrical Engineers; American Society of Mechanical Engineers.

Suggestions for enlarging the American Standard Graphical Symbols for Use on Drawings in Mechanical Engineering, Z32.2-1941, are now being circulated to members of Subcommittee 1 on this subject of the Sectional Committee on Graphical Symbols and Abbreviations for Use on Drawings, Z32. These suggestions have been made in order that the standard may better meet the present requirements of the Armed Services and industry. The

American Standard

→ safety requirements
→ methods of test
→ specifications
→ dimensions
→ definitions

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